

FLORA  
OF THE PRAIRIE PROVINCES

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Part II -- DIGITATAE, DIMERAE, LIBERAE

Sub-class 2. HERBIDAE

HERBACEOUS DICOTS

Herbs, annual or perennial, the bark poorly if at all developed. Rarely woody and if so the wood formations nearly always of a rather unusual type.

The following key also includes the herbaceous groups from the Lignidae. The very few woody types in the Herbidae will similarly appear in the key to the Lignidae, part I, page 39. And a few unusual types with a corolla of fused petals will appear in the key to the Connatae in part III.

For the beginner, the task of identification can be greatly lightened by first learning to recognize some of the more characteristic and larger families and genera. The following are recommended as a start.

1. Conifers. Nearly all have leaves that remain on the branch during the winter and persist for some 4 to 6 years; these leaves are mostly long, stiff and narrow, somewhat shaped like so many needles. Other genera with similar persistent foliage needles are: Empetrum (leaves mostly subverticillate), Loiseleuria (leaves opposite) and Phyllodoce (leaves alternate); all three have the foliage variously pubescent or glandular. Two other genera, Hudsonia and Cassiope, are vaguely reminiscent of Juniperus horizontalis in the arrangement of their reduced leaves.

WOODY DICOPSIDS

2. Salicaceae. Willows and Poplars. Both the male and female flowers form elongated catkins and the small seeds have a long fluffy pappus. The largest genus, Salix, has the unique character of buds covered by a single scale which is shaped like a hood to cover the whole bud. Other genera with flowers in catkins are: Betula (winged seeds), Ostrya (seed in an inflated bladder), Myrica (fruiting catkins in a naked spike), and Alnus (fruiting catkins in a naked raceme). In two other genera, Corylus and Quercus, the male flowers are in elongated catkins, but the female flowers seem to be in glomerules rather than catkins; both have edible hard-shelled nuts for fruits.

3. Ribes (Grossulariaceae) has palmately lobed and alternate leaves; the fruit is a berry. Two other genera have the leaves palmatilobed and alternate: Rubus (petals rather large) and Physocarpus (calyx stellate-pubescent). In two other genera the leaves are similar, but opposite: Acer (fruit a pair of samaras) and Viburnum (fruit a berry).

4. Ericales. A rather variable group, but in most species the anthers are attenuate at tip into a pair of short-stubby to long-attenuate horns. Hence the old alternate name of Bicornes, now fallen into disuse. The anthers often open by pores located at tip.

#### HERBACEOUS DICOPSID

5. Compositae include many well known flowers such as Dandelions, Sunflowers and Daisies. The flowers are rather small and packed together into a head which presents the rough appearance of a flower and is often popularly so called. Often the corollas are prolonged into radiating ligules. The head is closely surrounded by one or more rings of small bracts termed tegules. This is our largest family. The petals are fused in this family and also in families 14, 15 and 16 below, while all the others have free petals. Other units with flowers in involucreated heads are keyed out under Group 4.

6. Umbelliferae have flowers in umbels, that is with their pedicels all originating at the same point at the top of the common peduncle. A few other units with flowers in umbels are eliminated under Group 5.

7. Cruciferae have rather readily recognizable flowers in bractless racemes. The 4 unguiculate petals have the limbs spreading out in the shape of a maltese cross. The sepals are also free and 4 in number, but there are 6 stamens of which the outer 2 are shorter. The fruit (or silique) is also characteristic, being made of 4 united carpels, of which the inner two are sterile and fused face to face to form a central partition (or septum) while the outer two carpels form the outer walls (or valves) of the locules.

8. Leguminosae also have distinctive flowers. The sepals are fused while the 5 petals are free. As for the stamens, one is free and the 9 others are fused by their filaments. The flower is zygomorphic and it is the upper petal (termed standard) which gives the plant its most distinctive feature. This standard is somewhat larger than the other petals which it overlaps and its limb is bent outwardly and spreads out fan-wise. The leaves are alternate and pinnate or trifoliate. The leaflets are entire or merely serrulate. A large and readily recognized family once a few of its members are known, such as: Ca-ragana, Pea, Clover or Bean. A few other families have zygomorphic corollas of free petals; they are keyed out under Group 9a.

9. Rosaceae. A rather heterogeneous family, but most of its herbaceous members have a double calyx with 10 lobes in two series. The inner series of 5 lobes is apparently the main one. The 5 other lobes are attached to the outside of the calyx tube and they alternate with the inner lobes. A double calyx is also found in the Malvaceae, but the latter are readily recognized by their stellate pubescence.

10. Polygonaceae. Its two larger genera are readily spotted by their unique features. In Polygonum there are two shea-

thing structures at each node. The inner and larger one, termed ocrea, is tubular and usually membranaceous. The outer structure is the more or less sheathing leaf-base and usually it is mostly adnate to the ocrea. An ocrea is also present in Rumex. And the latter has free sepals which persist in fruit, the 3 inner ones becoming much enlarged to form a three-winged structure with the seed hidden in the middle. The mid-nerve of some of the sepals is often enlarged into a seed-like "grain".

11. Onagraceae have a superficial resemblance to the Cruciferae because of their 4 free petals, but the ovary is obviously inferior and there are 8 stamens. A few other families have free petals and semi-inferior ovary, but their flowers are normally 5-merous.

12. Caryophyllaceae have opposite leaves and a rather rare type of inflorescence termed dichasium. In this type the stem ends in a single terminal flower and a pair of branches arise from the axils of the upper pair of leaves or bracts. These branches in turn end in a terminal flower and produce a secondary pair of branches from the axils of the upper bracts. And so on.

13. Ranunculaceae. Very heterogeneous, but represents a basic type of Flowering Plants. About half the species are in Ranunculus, a rather good example of primitive floral type. In this genus all the parts are free and the flower is regular; the basic number is 5 but the actual number may vary somewhat. There are commonly 5 sepals, 5 petals, many stamens and a great many achenes. The receptacle is clearly elongate and the leaves are alternate. Other genera in this family are variations of this basic type; thus Anemone has a simple perianth and opposite or verticillate leaves.

14. Labiatae are herbs with square stems, opposite leaves and obviously bilabiate flowers. The ovary is 4-lobed and matures into 4 distinct nutlets; that is, each lobe matures into a distinct nutlet.

15. Boraginaceae have flowers and fruits rather similar to the Labiatae, but the leaves are alternate, the stem is not square and most species are rather coarsely pubescent or bristly-pubescent, the larger hairs being usually inflated at base.

16. Scrophulariaceae. A rather diverse agglomeration, but most of its types resemble Labiatae with their square stems, opposite leaves and tubular, zygomorphic flowers. However, the fruit is a bilocular capsule and is not 4-lobed.

#### MONOPSIDS

17. Gramineae. A highly specialized family, not to be confused with anything else. It contains the Bluegrass from our lawns, the Brome from the roadsides and the Oats and other cereals from our fields. The family has many unique features. The stem is of the Bamboo type, that is round and hollow, with an occluding plate at each node. The leaf arises from the top of a long sheathing base. The flower is reduced to 3 stamens and an ovary. Each flower is enclosed by 2 chaffy bracts termed

lemma and palea. The flowers are gathered in short distichous spikelets. Each spikelet is subtended by a pair of chaffy bracts termed glumes.

18. Cyperaceae have a superficial resemblance to Gramineae: chaffy bracts in the inflorescence and narrow leaves with sheathing bases, but the stem is solid and nearly always triangular while the floral organization is very different. Actually there are many types of floral organization in this family but Carex, the largest genus, is readily recognized by its female flower reduced to a mere ovary and enveloped by a bottle-shaped bract termed utricule. The flowers are unisexual and borne in spikes.

19. Juncaceae is also a family of grass-like plants but here the flower is reduced only in size. It is like the flower of the Liliaceae except that the 6 perianth parts are small and chaffy.

20. Orchidaceae. This is another highly specialized family with many unique features. The ovary is inferior and the flower is strongly zygomorphic with the lower petal (termed labellum) generally larger and produced forward like a small landing stage. The style and the only stamen (2 in Cypripedium) are fused together into a rather unusual structure termed gynostemium.

21. Liliaceae have a basic and quite unspecialized type of flower with 3 free sepals, 3 free petals, 6 free stamens and a 3-locular superior ovary. The flowers are usually showy and the petals and sepals tend to be similar.

22. Potamogetonaceae are common submerged aquatics with entire leaves and spikes of insignificant flowers or achenes protruding above the surface of the water. No other plant matches this behaviour.

The 22 families characterized above comprise better than 85% of our flora and learning to recognize them should reduce the task of identification by more than half.



## GENERAL KEY TO THE HERBACEOUS DICOPSIDS

- a. Plants of unusual behaviour: climbing  
or parasitic on other plants ..... Group 1
- aa. Self-supporting plants.
  - b. Flowers normally lacking or replaced  
by unusual structures such as bulblets,  
tufts of leaves, etc ..... Group 2
  - bb. Flowers normally present.
    - c. Leaves vestigial, or peltate, or  
carnivorous, or submerged and  
finely dissected, thus the plant  
is more readily identified by its  
foliage ..... Group 3
    - cc. Plants more ordinary in their foliage  
and their general presentation and  
more readily identified by their  
flowers.
      - d. Inflorescence highly reduced  
and condensed into an involucre  
head (or cyathium etc.) which has  
more or less come to function as  
a single flower. The individual  
flowers in the head may be highly  
reduced ..... Group 4
      - dd. Flowers individualized.
        - e. Flowers in umbells ..... Group 5
        - ee. Not in umbells.
          - f. Flowers more or less  
reduced.
            - g. Perianth lacking ..... Group 6
            - gg. Perianth present  
but the flowers  
all unisexual ..... Group 7
          - ff. Perianth present and  
flowers all or mostly  
perfect.
            - h. Perianth simple ..... Group 8
            - hh. Perianth double.
              - i. Petals free ..... Group 9
              - ii. Petals  $\pm$  fused ..... part III

## Group 1

Climbing or parasitic plants. Other climbers, besides those keyed out below, occur in the Lignidae and Monopsida: Smilax (leaves entire and alternate), Lonicera (leaves entire and opposite), Vitis (palmately lobed) and Parthenocissus (digitate). Another root parasite occurs in the Monopsida: Coral-lorhiza (flowers spicate).

- a. Both parasitic and climbing by its yellow,  
leafless, twining stem ..... Cuscuta, part III

- aa. Either parasitic or climbing.
  - b. Climbing only.
    - c. Climbing by tendrils.
      - d. Leaf simple ..... 33. Cucurbitaceae, part I-149
      - dd. Leaf compound ..... 16. Leguminosae, part I-71
    - cc. Climbing by twining stems or petioles
      - e. Leaves compound.
        - f. Stem twining.
          - g. Leaflets 3 .... Amphicarpa, part I-104
          - gg. Much more numerous .... Adlumia, p. 42
        - ff. Petioles twining ..... Clematis, p. 23
      - ee. Leaves simple, entire to deeply lobed.
        - h. Leaf peltate ... 65. Menispermaceae, p. 39
      - hh. Not peltate.
        - i. Leaves opposite ..
          - ..... 24. Cannabinaceae, part I-133
        - ii. Leaves alternate.
          - j. Leaves triangular to hastate.
            - k. Flowers large, solitary ..
              - ... 94. Convolvulaceae part III
            - kk. Flowers small, in loose racemes ..
              - ..... Polygonum, p. 109
          - jj. Leaves ovate to cordate to trilobed .... Solanum, part III
  - bb. Parasitic only.
    - l. Parasitic on branches ..
      - ..... 46. Loranthaceae, part I-173
    - ll. Parasitic on roots.
      - m. Perianth of free parts ..... 42. Monotropaceae, part I-171
      - mm. Corolla of fused petals ..... 96. Orobanchaceae, part III

#### Group 2

Lacking flowers or flowering very rarely. Also normally sterile are two groups in the Monopsida: Lemnaceae (very small, free floating aquatics) and Anacharis (submerged, leaves entire and verticillate or opposite).

- a. Flowers replaced by fleshy bulblets.
  - b. Bulblets in a terminal spike ..... Polygonum, p. 109
  - bb. Bulblets axillary ..... Lysimachia, p. 135
- aa. No bulblets.
  - c. Leaves entire. Shore plants ..... Hippuris, p. 140
  - cc. Leaves serrate to finely divided.
    - d. Leaves opposite or verticillate.
      - Aquatics.

- e. Ultimate segments filiform  
and entire ..... Bidens, part III
- ee. Ultimate segments flattened  
and serrulate ..... 62. Ceratophyllaceae, p. 62
- dd. Leaves alternate.
  - f. Leaves finely dissected;  
terrestrial ..... Artemisia, part III
  - ff. Leaves serrulate; submerged  
aquatic ..... Potamogeton crispus, part IV

## Group 3

Leaf or stem modified in some vary unusual manner. Note also in the Monopsida, the Lemnaceae (very small, free floating aquatics).

- a. Leaves vestigial or lacking. Stem  
thick and fleshy.
  - b. Ferociously spiny ..... 34. Cactaceae, part I-149
  - bb. Spineless ..... Salicornia, p. 127
- aa. Leaves present.
  - c. Leaves peltate.
    - d. Polygonal and marginally  
peltate ..... 65. Menispermaceae, p. 39
    - dd. Elliptic and centrally  
peltate ..... 61. Cabombaceae, p. 36
  - cc. Not peltate.
    - e. Carnivorous bog plants. Note  
also Utricularia under ee.
      - f. Leaf hollowed out, shaped  
like a "horn of plenty"  
and half-filled with  
water ..... 89. Sarraceniaceae, p. 159
      - ff. Leaf covered with long,  
capitate processes,  
like very coarse hairs,  
reddish and sticky .... 88. Droseraceae, p. 158
    - ee. Submerged aquatics with the leaves  
dissected into filiform segments.
      - g. Leaves alternate.
        - h. Leaf base narrow .... Utricularia, part III
        - hh. Leaf base dilated  
by the adnate  
stipules ..... Ranunculus, p. 24
      - gg. Leaves opposite or verticillate.
        - i. Pectinately divided... Myriophyllum, p. 139
        - ii. Dichotomously divided.
          - j. Ultimate segments  
filiform and  
entire ..... Bidens, part III
          - jj. Ultimate segments  
flattened and ser-  
rulate ... 62. Ceratophyllaceae, p. 62

## Group 4

Flowers in dense heads and each head surrounded by one or more rings of bracts. In the Monopsida a parallel variation occurs in the Araceae where a very dense spike of florets is subtended by a spathe.

- a. The one ovary per head borne on a long stipe and exserted from the head ..... 37. Euphorbiaceae, part I-154
- aa. Ovaries numerous and hidden among the bases of the florets.
  - b. Florets obviously pedicellate and more or less exserted from the involucre ..... Eriogonum, p. 103
  - bb. Florets sessile or nearly so.
    - c. Flowers strongly bilabiate.
      - d. Involucre of trifoliate leaves ..... Trifolium, part I-79
    - dd. Involucre of simple bracts ..... 106. Labiatae, part III
  - cc. Flowers  $\pm$  actinomorphic or ligulate.
    - e. Head subtended by a reflexed tubular sheath, that is by a sheath attached at the base of the head and directed downwards, with the open end at the lower end .. ..... 81. Plumbaginaceae, p. 137
  - ee. No sheath, reflexed or otherwise.
    - f. Flowers 5-merous, often ligulate... 113. Compositae, part III
    - ff. Flowers 4-merous, never ligulate.
      - g. Leaves alternate, spiny-toothed ..... Eryngium, p. 162
    - gg. Opposite and not spiny.
      - h. Leaves entire .. ..... 109. Plantaginaceae, part III
    - hh. Leaves pinna-tifid... 112. Dipsacaceae, part III

## Group 5

Flowers in umbels.

- a. Ovary inferior.
  - b. Fruit a berry; petioles not sheathing at base ..... 28. Araliaceae, part I-138
  - bb. Fruit a diachene; petioles dilated

into a  $\pm$  sheathing base ..... 90. Umbelliferae, p. 159

aa. Ovary superior.

c. Stem leafless except for the bracts of the involucre.

d. Flowers 3-merous ..... Eriogonum, p. 103

dd. Flowers 5-merous ..... 80. Primulaceae, p. 130

cc. Stem leafy.

e. Leaves compound.

f. Leaves trifoliate ..

..... 101. Oxalidaceae, part III

ff. Leaves pinnate ..... Erodium, part III

ee. Leaves simple.

g. Inflorescences arising out of

the internodes ..... Solanum, part III

gg. Umbels terminal or axillary.

h. Umbels in a terminal leafy

corymb ..... 37. Euphorbiaceae, part I-154

hh. Umbels solitary, mostly

axillary.

i. Leaves entire ..

..... 53. Asclepiadaceae, part I-180

ii. Leaves serrate ..

..... Chimaphila, part I-168

#### Group 6

Flowers without perianth.

a. Leaves opposite ..... 85. Callitrichaceae, p. 146

aa. Leaves verticillate ..... Hippuris, p. 140

#### Group 7

Flowers unisexual. Species with some unisexual flowers mixed with the perfect ones are not included in this key.

a. Leaves ternately compound ..... 60. Ranunculaceae, p. 14

aa. Leaves simple to pinnately divided.

b. Stem-leaves pinnatipartite ..

..... 91. Valerianaceae, part III

bb. Leaves entire to lobed.

c. Flowers verticillate in terminal

spikes; ocrea present ..... Rumex, p. 104

cc. No ocrea; flowers variously disposed.

d. Style one ..... 23. Urticaceae, part I-132

dd. Styles 2-3.

e. Sepals and bracts herbaceous..

..... 78. Chenopodiaceae, p. 118

ee. Sepals and bracts scarious ..

..... 79. Amaranthaceae, p. 129

#### Group 8

Flowers perfect, or in large part perfect and mixed with some unisexual flowers. Perianth made up of a single verticil,



often termed tepals; a second verticil is sometimes present, but vestigial or falling off very early and normally lacking in herbarium specimens. The key includes some groups in which both verticils are present, but are so much alike as to seem only one.

- a. Flowers zygomorphic.
  - b. Leaves compound ..... Adlumia, p. 42
  - bb. Leaves simple.
    - c. Leaves deeply divided.
      - d. Leaves palmatifid .... 60. Ranunculaceae, p. 14
      - dd. Leaves pinnatipartite ..
        - ..... 91. Valerianaceae, p. III
    - cc. Leaves merely serrate.
      - e. Perianth petaloid and conspicuous ..... 102. Balsaminaceae, part III
      - ee. Perianth reduced to a green bract ..... Besseya, part III
  - aa. Flowers regular.
    - f. Ovary superior ..... Group 8A
    - ff. Ovary inferior.
      - g. Stemless creeping herb with 2 leaves and a single flower ..... 66. Aristolochiaceae, p. 40
      - gg. Stem present; leaves and flowers more numerous.
        - h. Leaves verticillate ..... Galium, part I-185
        - hh. Alternate or opposite.
          - i. Alternate ..... 47. Santalaceae, part I-173
          - ii. Opposite ..... Chrysosplenium, p. 156

#### Group 8A

Group 8 with a regular flower and a superior ovary.

- a. Calyx segments fused below; leaves opposite.
  - b. Leaves obtuse or rounded at tip ..... Glaux, p. 136
  - bb. Leaves sharply acuminate ..... 77. Illecebraceae, p. 117
  - aa. Perianth of free parts.
    - c. Carpels numerous and free .... 60. Ranunculaceae, p. 14
    - cc. Carpels more or less fused.
      - d. Carpels 5, fused below the middle, obviously free above ..... Penthorum, p. 148
      - dd. Carpels completely fused into a single compound ovary.
        - e. Flowers large and showy, the petals at least 1 cm long ..
          - ..... 67. Papaveraceae, p. 40
        - ee. Much smaller.
          - f. Flower 3-merous; ocrea mostly present .... 76. Polygonaceae, p. 102
          - ff. 4-5 merous, no ocrea.
            - g. Leaves opposite ..
              - ..... 74. Caryophyllaceae, p. 81

- gg. All or mostly alternate,  
rarely vestigial.
- h. Floral parts in 4's ..

..... Lepidium, p. 49  
 hh. In 5's...73. Chenopodiaceae, p. 118

#### Group 9

Sepals and petals present, the latter free.

- a. Flower zygomorphic ..... Group 9A
- aa. Flower regular.
  - b. Sepals usually fused; ovary inferior or  
semi-inferior, or superior ..... Group 9B
  - bb. Sepals free; ovary superior.
    - c. Sepals 2.
      - d. Leaves entire .....75. Portulacaceae, p. 100
      - dd. Serrate to deeply divided ..  
..... 67. Papaveraceae, p. 40
    - cc. Sepals 3 or more.
      - e. Carpels numerous and free.
        - f. Leaves peltate .... 61. Cabombaceae, p. 36
        - ff. Not peltate ..... 60. Ranunculaceae, p. 14
      - ee. Carpels fused into a single  
compound ovary ..... Group 9C

#### Group 9A

Flowers zygomorphic.

- a. Flowers spurred.
  - b. Sepals petaloid.
    - c. Leaves remotely serrulate ..  
..... 102. Balsaminaceae, part III
    - cc. Leaves deeply and palmately divided ..  
..... Delphinium, p. 17
  - bb. Sepals green ..... 31. Violaceae, part I-142
- aa. Not spurred.
  - d. Petals deeply and palmately lobed ..  
..... 72. Resedaceae, p. 80
  - dd. Entire or nearly so.
    - e. Sepals fused into a campanulate  
to tubular calyx ..... 16. Leguminosae, part I-71
    - ee. Sepals free or practically so.
      - f. Sepals petaloid ..... Aconitum, p. 19
      - ff. Sepals green ..... 70. Capparidaceae, p. 44

#### Group 9B

Flower regular; sepals usually fused.

- a. Carpels more than 2 and obviously free or nearly so.
  - b. Foliage very fleshy; calyx not double .... Sedum, p. 147
  - bb. Not fleshy; calyx often double ..  
..... 15. Rosaceae, part I-45

## aa. Carpels only 2 or fused.

- c. Carpels clearly 2, (rarely 3), more or less fused ventrally, but the tip and the styles always free ..... 87. Saxifragaceae, p. 148

## cc. Carpels completely fused into a single compound ovary.

- d. Calyx-lobes 2 ..... 75. Portulacaceae, p. 100

## dd. More than 2, usually 4 or 5.

## e. Ovary inferior.

- f. Leaves compound ..... Agrimonia, part I-67

## ff. Leaves simple.

- g. Petals 10 ..... 69. Loasaceae, p. 43

## gg. Petals 4-6.

- h. Petals 4... 84. Onagraceae, p. 140

- hh. Petals 6... 82. Lythraceae, p. 138

## ee. Ovary superior.

## i. Stem leafy, the leaves

- alternate ..... 36. Malvaceae, part I-151

## ii. Leaves opposite, or verticillate, or mostly basal.

## j. Leaves verticillate ..

- ..... Chimaphila, part I-168

## jj. Leaves opposite or mostly basal.

## k. Leaves and bracts opposite.

- l. Inflorescence a dense spike of opposite glomerules ..

- ..... 82. Lythraceae, p. 138

## ll. Inflorescence not spiciform ..

- .. 74. Caryophyllaceae, p. 81

## kk. Leaves all or mostly basal; bracts alternate.

## m. Inflorescence

- branched .... Limonium, p. 137

## mm. Simple, a raceme or a single flower.

- n. Stamens 5; staminodes 5 or more; flower solitary ..

- ..... Parnassia, p. 157

- nn. Stamens 10; no staminodes; flowers usually numerous ..

- ... 41. Pyrolaceae, part I

## Group 9C

Sepals and petals free; sepals more than 2; single ovary.

An unusual Monopsid with a single verticil of 3 entire leaves,  
Trillium part IV, may key out here.

- a. Flowers in bractless racemes, rarely with one or a few bracts at the base of the raceme ..... 71. Cruciferae, p. 45
- aa. Flowers basal, or axillary, or in bracted inflorescences.
  - b. Leaves simple and entire.
    - c. Aquatic plant with large floating leaves and flowers ..... 63. Nymphaeaceae, p. 37
  - cc. Terrestrial or shore plants with a well defined stem.
    - d. Leaves alternate ..... 99. Linaceae, part III
  - dd. Leaves opposite.
    - e. Flowers axillary... 73. Elatinaceae, p. 80
  - ee. Flowers terminal or in terminal inflorescences.
    - f. Foliage dotted with black or clear dots; flowers mostly yellow .. ..... 38. Hypericaceae, part I-156
  - ff. Foliage not dotted; flowers not yellow .. ..... 74. Caryophyllaceae, p. 81
- bb. Leaves lobed to compound.
  - g. Leaves pinnate or merely lobed .. ..... 100. Geraniaceae, part III
- gg. Leaves ternately compound or digitate.
  - h. Leaves trifoliate or digitate.
    - i. Flowers racemose .. ..... 70. Capparidaceae, p. 44
  - ii. Flowers in axillary pairs or in cymes .... 101. Oxalidaceae, part III
- hh. Ternately divided into numerous leaflets.
  - j. Flowers in a raceme ..... Actaea, p. 16
  - jj. Flowers in a few-flowered panicle ..... Caulophyllum, p. 38

#### Order 34. RANALES

Receptacle elongate, often cylindric or even long linear, with the floral parts spirally arranged rather than verticillate. Flower typically regular, with all parts free, mostly in 5's, but often of a different mery, or variable in number, or very numerous.

- a. Submerged aquatics with verticillate leaves ..... 62. Ceratophyllaceae, p. 62
- aa. Leaves alternate or opposite.

- b. Terrestrial or aquatics without floating leaves or with variously dissected floating leaves ..... 60. Ranunculaceae, p. 14
- bb. Aquatics with entire floating leaves.
  - c. Carpels free ..... 61. Cabombaceae, p. 36
  - cc. Carpels fused ..... 63. Nymphaeaceae, p. 37

#### 60. RANUNCULACEAE (CROWFOOT FAMILY)

The typical family of the order, more or less fitting the description of the latter.

- a. Climbers with opposite leaves ..... 10. Clematis
- aa. Non-climbers.
  - b. Flower spurred.
    - c. Only 1 spur ..... 6. Delphinium
    - cc. Spurs 5.
      - d. Small herb with entire leaves ..
        - ..... 11. Myosurus
      - dd. Taller and the leaves compound ..
        - ..... 5. Aquilegia
  - bb. Not spurred.
    - e. Flower very irregular ..... 7. Aconitum
    - ee. Flower quite regular.
      - f. Perianth simple, closely subtended by a calyx-like involucre of 3 verticillate bracts ..... 9. Hepatica
      - ff. No such involucre.
        - g. Stem-leaves opposite or verticillate ..... 8. Anemone
        - gg. Leaves alternate or all basal.
          - h. Carpel solitary, maturing into a berry ..... 4. Actaea
          - hh. Carpels 2 or more; fruit not fleshy.
            - i. Perianth double, of distinct sepals and petals ..... 12. Ranunculus
            - ii. Perianth simple, of more or less petaloid sepals.
              - j. Leaf simple.
                - k. Leaf entire to toothed ..... 1. Caltha
                - kk. Leaf palmately lobed ..... 2. Trollius
              - jj. Leaf compound.
                - 1. Trifoliate ..... 3. Coptis
                - ll. Leaflets more numerous.... 13. Thalictrum



1. CALTHA L.

## MARSH MARIGOLD

Perianth simple, of 5-10 petaloid sepals. Fruit a group of follicles.

- a. Plant bearing only 1-(2) flowers and only one stem leaf or none ..... 1. C. leptosepala
- aa. Flowers and stem leaves more numerous.
  - b. Sepals 1-2 cm long, follicles 13-16 mm long ..... 2. C. palustris
  - bb. Sepals and follicles much smaller ..... 3. C. natans

1. C. leptosepala DC. var. leptosepala -- Elkslip -- Large flower usually with 7-8 oblong-lanceolate tepals, yellowish-white ventrally, yellowish to bluish dorsally. Stem or scape erect, 1.0-2.5 dm high. Leaves broadly ovate, deeply cordate, crenate. Late spring to mid summer. Wet places above timberline. -- Y-Aka, Alta-BC.

Further south, in Idaho, there is a local var. sulfurea C.L. Hitchc. in which the sepals are of a straight yellow colour.

2. C. palustris L. var. palustris -- Cowslip, King-Cup (Souci d'eau) -- A coarse herb with a few large leaves, very conspicuous in the spring with its large yellow flowers. Leaves deltoid-reniform, dentate. Tepals 1-2 cm long, elliptic. Carpels 4-8. Late spring. Wet or boggy places. -- seK-Mack, NF, NS-Alta, US, Eur.

To the west and northwest of us our variety grades into a poorly defined var. asarifolia (DC.) Huth in which the inflorescence leaves are more coarsely and less abundantly dentate than the basal ones. Also, the stem is often arching and may become rooting in the inflorescence. All Alaska reports presumably belong to var. asarifolia.

3. C. natans Pallas -- More or less creeping on mud or in shallow water. Generally smaller and often more leafy. Flowers cream, 6-12 mm across. Carpels numerous, 4-5 mm long. Summer. Muddy shores and shallow waters. -- swK-Aka, wO-eBC, US, (Eur).

2. TROLLIUS L.

## GLOBE-FLOWER

Much as in Caltha, but the leaves palmately divided and the flower with a ring of staminodia between the stamens and the tepals. Staminodia often large and petaloid.

1. T. laxus Sal. (T. albiflorus (Gray) Rydb.) -- Globe-flower -- Showy herb with large cream-coloured flowers. Stem with 2-3 leaves, these subsessile and palmatipartite. Tepals 1-2 cm long. Flower solitary at the end of the stem. Early to mid-summer. Moist places in alpine and subalpine meadows. -- Alta-BC, US.

3. COPTIS Sal.

## GOLDTHREAD

Like Trollius, but the follicles stipitate and the leaf compound.

1. C. trifolia (L.) Sal. (C. groenlandica (Oeder) Fern.) -- Goldenthread (Savoyane) -- Ovaries and follicles long stipitate, the stipe often as long as the body of the fruit. Long stoloniferous with a thin yellow rhizome. Leaves all basal, trifoliate, crenate, often trilobed. Flower white, with (4)-5-(6) tepals less than 1 cm long. Late spring. Coniferous forests. --G-(F)-K, Aka, L-SPM, NS-BC, US, (Eur).

Plants from our area and eastward are usually distinguished as C. groenlandica. The distinction is a very easy one to implement since there appears to be a distributional gap in the region of the Rockies. But like Hultén 1944, we have been unable to give a morphological basis to this distinction.

#### 4. ACTAEA L.

#### BANE BERRY

Flowers with a single carpel which matures into a berry. Both sepals and petals present, petaloid and caducous. Leaf much compound.

1. A. rubra (Aiton) W. var. rubra -- Poisonberry, Snakeberry (Poison de couleuvre, Pain de couleuvre) -- Stam simple, bearing 2-3 large leaves, 2-4 times ternate. Flowers white, small, all gathered in a terminal raceme. Raceme ovoid or oblong. Peduncle about 2-4 times as long as the fruiting raceme. Fruit red. Early summer. Rich woods, mostly along watercourses. -- (K)-Mack-Y-Aka, L-NF, NS-BC, US -- F. neglecta (Gillman) Rob. (A. alba AA.) -- Fruits white. Quite common. -- Mack, L-NF, NS-Alta, US -- Var. arguta (Nutt.) Lawson -- Inflorescence elongate, often with one flower borne well down the peduncle or with a flower or reduced raceme in the axil of the upper leaf. Peduncle 1-2 times as long as the fruiting raceme. Berry red. - Y-Aka, sAlta-BC, US -- F. eburnea (Rydb.) Boivin. -- Berries white, otherwise as var. arguta. Rather common. -- swAlta-BC, US.

#### 5. AQUILEGIA L.

#### COLUMBINE

All 5 petals long-spurred. Sepals 5, petaloid. Inner stamens reduced to staminodes. Fruit a group of follicles. Leaves ternately compound.

- a. Scape leafless and 1-flowered ..... 2. A. Jonesii
- aa. Taller and many-flowered.
  - b. Flowers blue ..... 1. A. brevistyla
  - bb. Flowers red or yellow.
    - c. Flowers yellow, the sepals sometimes tinged red ..... 5. A. flavescens
    - cc. Flowers red.
      - d. Sepal erect, shorter than the spur ..... 3. A. canadensis
      - dd. Spreading, longer than the spur ..... 4. A. formosa

1. A. brevistyla Hooker -- A forest species with blue flowers bearing 5 spurs. Basal leaves twice ternate, the stem-leaves smaller. Flower with a yellow center. Spurs short, 6-7 mm long, strongly recurved. Styles short, 3-4 mm long. Late spring and early summer. Wooded shores. -- Mack-Aka, wO-BC, (US).

2. A. Jonesii Parry -- Low and very small, 1 dm high or less. Scape leafless and 1-flowered. Leaves strongly glaucous. Leaflets small, 1 cm wide or less, crowded. Flowers blue to somewhat purplish. Spurs straightish, 8-15 mm long. Staminodia lacking. Follicles glabrous and glaucous. Styles about 12 mm long. (Early summer?). High alpine, in rocky places: Waterton. -- Alta, (US).

3. A. canadensis L. var. eminens (Greene) Boivin (var. hybrida AA.) -- Wild Columbine, Meetinghouse (Glands, Gants de Notre-Dame) -- Flowers purple-red, with erect sepals, Stem 5-10 dm high. Flower center yellow. Spurs 12-20 mm long. Styles 9-13 mm long. Late spring and early summer. Galerie-forests. -- wO-ecS, US.

In the more eastern var. canadensis the spurs are longer, 20-25 mm long.

Our variety has been usually called var. hybrida Hooker, but the type of the latter comes from much farther west in the Rocky Mountains. This prompted us to examine it in 1950 and, for sure, it proved to be a specimen typical of A. brevistyla.

4. A. formosa Fischer var. formosa -- Wild Columbine -- Like the preceding, but showier, the sepals being widely spreading. Flower red. Sepals 12-23 mm long. Petals with a red spur, 10-20 mm long, and a very short yellow blade, 2-4-(6) mm long. Styles 10-15 mm long. First half of summer. Mountain woods. -- (Y)-Aka, swAlta-BC, US.

In the more southern var. truncata (Fisch. & Mey.) Jones the blades of the petals are even shorter, only 1-2 mm long. Two other varieties are also known from California.

5. A. flavescens Watson var. flavescens -- Yellow Columbine -- Quite similar to A. formosa, but the flower entirely yellow. Blade of the petal longer, 6-10 mm long. Styles a bit shorter, 8-10 mm long. Early summer. Open mountain woods. -- swAlta-BC, US -- Var. miniana Macbr. & Pays. -- Seemingly intermediate to A. formosa, the sepals being pink-tinged to salmon. But the petals yellow, with a long blade, as in var. flavescens. -- swAlta-BC, US.

Var. miniana has also been regarded as an interspecific hybrid of A. flavescens X formosa.

## 6. DELPHINIUM L.

## LARKSPUR

One sepal long-spurred. Sepals 5, petaloid; petals 4; the flower strongly irregular. Fruit a group of follicles. Leaves palmately divided.

- a. Middle and upper leaves sessile or nearly so ..... 3. D. Ajacis  
 aa. Stem leaves long-petioled.  
 b. Low, with only 1-(3) stem leaves ..... 1. D. bicolor  
 bb. Tall and very leafy ..... 2. D. Brownii

1. D. bicolor Nutt. (D. depauperatum Nutt.; D. Nuttallia-num Pritzel) -- Prairie Larkspur -- Stem 1-6 dm high, more or less puberulent to villous above and into the inflorescence. Leaf palmatipartite into narrow segments. Inflorescence usually simple and few-flowered. Flowers blue, but the upper two petals whitish with conspicuous purple nerves. Late spring to mid summer. Montane prairies and open woods in the Rockies and the Coteau Boisé. -- swS-BC, US -- F. DeVriesii Boivin -- Flowers white. Cypress Hills. -- seAlta-sBC.

Rather variable as to pubescence, development of tuberous roots, size of tepals and depth of colouring, etc. Accordingly it is often subdivided into a series of microspecies.

2. D. Brownii Rydb. (D. glaucum AA., D. scopulorum AA.) -- Larkspur, (Pied d'alouette) -- Taller, the stem 0.5-2.0 m., glabrous throughout, even usually the inflorescence. Leaves numerous, palmatifid, the segments rhomboid-lanceolate and coarsely lobed. Inflorescence a long, narrow panicle of racemes. Flowers blue, the upper two petals yellow-white along the upper edge. Mid summer. Wettish, open woods; commonly cultivated and sometimes escaping. -- Q-BC, (US) -- F. pallidiflorum Boivin -- Flowers nearly white. Has been collected near Banff. -- Alta.

Native in light woods and openings from about the center of Saskatchewan westward. Commonly cultivated and escaping fairly readily. The known Manitoba collections are LePas 1955 and 1957, Clear Lake 1958 and Fort de Pierre in 1959. All at DAO.

D. elatum L., with the habit of the above and 4 blackish petals long-bearded in yellow, is sometimes cultivated. A collection from a coniferous forest in the Cypress Hills (UAC: DAO, photo) probably represents a planting in the wild.

3. D. AJACIS L. -- Larkspur (Bec d'oiseau, Pied d'alouette) -- Annual. Leaves numerous, ternately and pinnately divided into numerous filiform segments about 1 mm wide. Inflorescence a raceme or panicle of racemes. Flower colour variable. Petals only 2, fused. Carpel solitary, pubescent. Summer. Dumps and roadsides. -- (NS), Q-Man, BC, US, Eur.

Near D. Consolida L. and often confused with it. The latter has a glabrous ovary and a vaguely corymbose inflorescence.

A species common on the Coteau de Prairie not too far south of our borders, D. virescens Nutt., has also been reported from 3 localities in Manitoba: Lake Winnipeg Valley, Winnipeg and Netly, but we are yet unconvinced. Lake Winnipeg Valley on a Bourgeau collection is a pretty broad geographical term that covers much of Manitoba plus adjacent parts of Ontario

and of the U.S.A. There is also a Houghton collection labelled Winnipeg (HUH; DAO, photo) and it is correctly identified, but to our knowledge Houghton never came to collect in Canada; an error of labels seems likely here. We have not yet traced the Netly collection and remain sceptical in the meantime.

## 7. ACONITUM L.

## MONKSHOOD

Flower very irregular. Sepals 5, petaloid, the upper one much larger and strongly concave (hooded). Petals poorly developed, usually 8, of which 2 are larger than the others. Fruit a group of follicles.

1. A. delphiniifolium DC. var. delphiniifolium -- Much like Delphinium in foliage and general presentation, but the flower is not spurred. Instead, the upper sepal is larger than the others and covers them like a hood. Flower purple, drying deep blue. Mid summer. Mountain meadows. -- Mack-Aka, Alta-BC, US.

Two other varieties occur in Alaska, of which var. Chamissonis (Rchb.) Boivin is a taller plant with broader leaf segments, while var. paradoxum Rchb. is also taller and its larger flowers are few or commonly only one.

## 8. ANEMONE L.

Leaves opposite or verticillate. Perianth simple, usually petaloid. Fruit a group of achenes. Receptacle often very much elongated. The upper pair of leaves is sometimes treated as a remote involucre.

- a. Flowers large, the tepals 2-4 cm long; style elongating to 2-5 cm in fruit.
  - b. Stem-leaves sessile and ± palmately divided ..... 10. A. patens
  - bb. Stem-leaves short-petioled and pinnately divided, with an elongated leaf-rachis ..  
..... 9. A. occidentalis
  - aa. Flower smaller; style not elongating.
    - c. Stem leaves with a long and wingless petiole.
      - d. Stoloniferous and 1-2 dm high ..... 8. A. nemorosa
      - dd. Tufted and much taller.
        - e. Leaf-lobes serrate on one side for at least half their length ..... 6. A. virginiana
        - ee. Merely coarsely toothed towards the tip ..... 5. A. cylindrica
    - cc. Stem-leaves sessile or with a winged petiole.
      - f. Stem-leaves with a winged petiole and divided into numerous narrow and entire segments.



- g. 2 dm high or less and one-flowered ..... 4. A. Drummondii
- gg. Much taller and usually many flowered ..... 3. A. multifida
- ff. Sessile or nearly so, the segments mostly broader and more or less toothed.
  - h. Main stem-leaves 4-10 cm long ..  
..... 7. A. canadensis
  - hh. Stem-leaves smaller.
    - i. Carpels heavily lanate; tepals white, more or less bluish dorsally ..... 1. A. parviflora
    - ii. Carpels glabrous; tepals yellow ..... 2. A. Richardsonii

1. A. parviflora Mx. -- Stem bearing only 3 verticillate leaves, the latter sessile and deeply palmately lobed, the lobes  $\pm$  oblanceolate. Tufted, the basal leaves trifoliate or nearly so. Tepals white to creamy, more or less bluish dorsally when young. Achenes heavily long-lanate. Style erect, about 1 mm long. Late spring and early summer. River flats and open woods. -- F-Aka, L-NF, NB-Q-(O)-Man-BC, US, Eur.

2. A. Richardsonii Hooker -- Similar to the preceding. Stoloniferous. Basal leaves trilobed, the lobes broadly obovate. Stem leaves similar, subsessile. Flowers yellow. Achenes glabrous. Style elongating in fruit, becoming about 5 mm long, more or less reflexed, hooked or curled at tip. Late spring to mid-summer. Wet bogs. -- (G-K)-Mack-Aka, Q, Man-BC.

3. A. multifida Poir. -- Leaves divided into numerous narrow segments mostly 2-3 mm wide. Petiole of the stem-leaves about 1 cm long, narrowly winged. Flowers very variable in size and colour. Style about 1 mm long. Fruit a globose to ovoid head of long-lanate achenes. Early summer. Open woods and wet prairies. When in flower, the following variations may be distinguished: var. hudsoniana DC. (f. galactiflora Boivin, f. leucantha Fern.) -- Flowers white to yellowish. -- Mack-Y-(Aka), NF, (NB)-Q-BC, US -- F. sanguinea (Pursh) Fern. (var. Richardsiana Fern., var. Sansonii Boivin; A. globosa Nutt.) -- Flowers pink to deep purple. More frequent than the preceding. -- K-Y, NF, Q-BC, US -- Var. saxicola Boivin -- Flowers yellow inside, bluish outside. Similar to A. lithophila and often confused with it but taller and the styles shorter, as in var. hudsoniana. -- Mack, swAlta-BC, US.

Some Churchill collections are varietally intermediate and could have been referred to var. saxicola.

A hybrid with the following species has been created experimentally and reported by Heimburger, Can. Journ. Bot. 39: 488 - 501. 1961. We admit that if such a hybrid turned up naturally, we might have difficulty in recognizing it from var. saxicola.

4. A. Drummondii Watson (A. lithophila Rydb.) -- Similar to the preceeding, but generally smaller. Mostly about 1 dm high. Flowers yellow inside, blue outside. Styles about 2 mm, elongating to 3-4 mm in fruit. First half of summer. Rocky alpine tundras. -- Mack-(Y)-Aka, Alta-BC, US.

A. lithophila is commonly distinguished on the basis of shorter styles and broader leaf segments. Fruiting heads tend to show longer styles than flowers from the same tuft, from which we would deduce that the length of the style is more related to age than taxonomy. Types with broader and narrower leaf segments grade smoothly into one another and appear to be of sporadic occurrence in the range; their taxonomic significance is not obvious.

5. A. cylindrica Gray -- Thimbleweed -- Leaves generally gathered in a single verticil of (3)-5-7 leaves. Petiole wingless, about as long as the limb. Leaf trifoliate. Leaflets sessile, 3-lobed, the lobes coarsely few-toothed. Achenes whitish-lanate. First half of summer. Moist places in semi-open areas. -- Q-BC, US.

6. A. virginiana L. var. virginiana (A. riparia AA.) -- Thimbleweed -- Much like the preceeding but the verticil made up of only 3 leaves. Other leaves, when present, are opposite and borne on the peduncles. Leaves much as in the preceeding species, but somewhat larger and the lobes serrate along the outer edge. Tepals greenish and about 1 cm long. Achenes tawny-lanate. First half of summer. Moist spots, especially in woods. -- NF, NS, NB-BC, US.

Eastward the widespread var. virginiana grades into a var. riparia (Fern.) Boivin with whitish and larger tepals, 1-2 cm long.

7. A. canadensis L. -- Stem bearing a single verticil of (2)-3 large, sessile and trifid leaves. A pair of opposite leaves is also borne on each supplementary peduncle when the latter are present. Basal leaves palmatifid. Flower large, 2-4 cm across, white. Achenes large, pilose, forming a round head, the style about as long as the body. Early summer. Open, wet places. -- K-Mack, NS-BC, US -- F. Dicksonii Boivin -- Flower double. Lacombe. -- Alta.

8. A. nemorosa L. var. bifolia (Farwell) Boivin (A. quinquefolia L. var. interior Fern.) -- Stoloniferous and producing numerous 5-foliate sterile leaves. Stem 1-2 dm high, bearing a single terminal flower and a single verticil of 3 leaves. Leaves long-petioled, trifoliate. Flower about 1 cm across, white or pinkish. Achene hirsute. Style short and hooked. Second half of spring. Sandy woods. -- WQ-Alta, US.

Var. bifolia, stat. n., A. quinquefolia L. var. bifolia Farwell, Papers Mich. Ac. Sc. Arts Lett. 1: 94. 1923, an earlier name for our variety, was originally based on a two-leaved extreme of this normally three-leaved species. Thus it was rejected by Fernald, Rhodora 37: 260. 1935 as the "name would be quite misleading and unjustified". However the Code is quite

emphatic on this point and clearly states that a "name must not be rejected because it is inappropriate or because it has lost its original meaning". We have accordingly restored the older name.

Although our plant is usually treated as specifically distinct from the eurasian A. nemorosa, the latter is barely separable by its darker rhizomes, becoming black in drying, and its flowers that are often somewhat larger. The more western var. Lyallii (Britton) Ulbr. tends to be smaller, its sterile leaves are trifoliate and its slightly smaller flower is nearly always white.

9. A. occidentalis Watson -- Towhead-Baby -- Quite like the following, but the flower whitish and the leaves more divided into shorter segments. Basal leaves  $\pm$  bipinnate, the segments  $\pm$  lobed, the lobes  $\pm$  lanceolate. Stem leaves a bit smaller and nearly sessile. First half of summer. Late snow patches and wetter alpine meadows. -- swAlta-BC, US.

10. A. patens L. var. Wolfgangiana (Besser) Koch (var. Nuttalliana Gray; Pulsatilla ludoviciana (Nutt.) Heller) -- Crocus, Prairie-Crocus (Crocus) -- The whole plant very showy and in many ways: first by its abundant and very long villosity, then by its large bluish flowers, later by its large head of elongating and plumose styles. Basal leaves ternate, the leaflets 3-partite, the segments lobed, the lobes long linear. Stem leaves 3, similar but smaller, sessile and palmately divided into only 5-9 lobes. Very conspicuous in very early spring. Prairies. -- (F), Mack-Aka, Man-BC, US, (Eur) -- F. Stevensonis Boivin -- Tepals white. Brandon. -- Man.

F. Stevensonis f. n., floribus albis. Type: Stevenson 2025, Brandon, prairie, flowers white, four plants observed in several acres of bloom, May 9, 1960 (DAO).

A generalized distributional map by Löve 1954, extends the range of our variety to western Ontario and southern Keewatin, but we know of no justifying specimens.

The eurasian var. patens has the leaves divided into somewhat broader segments, 5-10 mm wide.

A. narcissiflora L. var. interior (Hultén) Boivin was reported from N.W. Alberta by Hultén 1944, repeated by some later authors. We know of no justifying specimens.

#### 9. HEPATICA Miller

Technically similar to Anemone, but the similarity not obvious because the 3 verticillate stem leaves are very small and located so close to the flower as to appear like a calyx of 3 sepals.

1. H. nobilis Schreber var. obtusa (Pursh) Steyermark (H. americana (DC.) Ker; H. triloba AA.) -- Liverleaf, Mouse-Ears (Trinitaire, Herbe de la Trinité) -- Leaves all basal, rather broad, reniform and trilobed, persisting till the following spring and present at flowering. Flower colour variable. Fruit

a group of hirsute achenes subtended by the persistent involucre of 3 ovate bracts. Flowering in early spring before the new leaves. Rocky deciduous woods. Prairie Coteau at Notre-Dame-de-Lourdes. -- (NS), NB-sMan, US.

An earlier mention for Manitoba was based on a collection from Cartwright's Point near Kingston, Ontario.

In our variety the lobes are broadly rounded and the terminal one is a bit shorter than wide. In the more eastern var. acuta (Pursh) Steyermark the deltoid leaf has acute lobes and the terminal one is  $1\frac{1}{2}$  times as long as wide.

#### 10. CLEMATIS L.

#### VIRGIN'S BOWER

Climbing by means of the twining petioles and petiolules. Shrubs with opposite leaves. Flowers much as in Anemone, the styles often very long in fruit.

a. Leaves all trifoliate.

b. Flower solitary ..... 3. C. verticillaris

bb. Flowers in panicles or corymbs ..... 1. C. virginiana

aa. Leaflets more numerous.

c. Flower solitary ..... 4. C. tangutica

cc. Flowers in panicles or corymbs.... 2. C. ligusticifolia

1. C. virginiana L. -- Virgin's Bower, Devil's Darning-Needle (Herbe aux gueux) -- Flowers yellowish to greenish, the tepals only about 1 cm long. Leaflets 3, ovate, coarsely toothed to  $\pm$  trilobed. Mid summer. Galerie - forest of the Roseau River. -- (NS-PEI)-NB-O-(Man, US).

2. C. ligusticifolia Nutt. -- Virgin's Bower -- Similar to the preceding, but the flowers whitish and the leaves with 5-(7) leaflets. Mid summer. Shores and river valleys. -- Man-BC, US.

Reaches its eastern limit as a native at the Elbow of the South Saskatchewan. It is sometimes cultivated and has been picked up four times as an escape in Manitoba, at Brandon 1921, 1922, at the Fort de Pierre in 1959 and at Carman in 1960. All at DAO.

3. C. verticillaris DC. var. columbiana (Nutt.) Gray (C. columbiana (Nutt.) T. & G.; Atragene columbiana Nutt.) -- Mountain-Clematis -- Flowers blue, very large and showy. Leaflets 3, ovate, entire to coarsely toothed. Tepals 3.5-6.0 cm long. First half of summer. Dry woods. -- swS-BC, (US).

In our variety the tepals are acuminate or acuminate - caudate. In the more eastern var. verticillaris the smaller tepals are 2.0-4.5 mm long, merely acute to obtuse at summit.

In the Lake Superior area one will find another and yet undescribed type: var. grandiflora var. n., floribus majoribus, tepalis ellipticis vel elliptico-lanceolatis, 4.5-6.0 cm long, 1.5-2.5 cm lat, rotundatis et mucronatis ad summas, vel interdum subacutis. Type: Dore & Lindsay 10 723, 5 miles south of Fort William, lower talus slope of basaltic mountain, June 15,



1950 (DAO). Paratypes: Dore & Lindsay 10 759, Port Arthur (DAO). Hutchinson 44, Inter-City (DAO); Pritchard, Lake Nipigon (TRT); A.M. Anderson Kashabowie (TRT); Taylor, Hosie & Bannan 874, Thunder Cape (TRT); C. Goessl, Neillsville, Wisc. (TRT).

4. *C. TANGUTICA* (Max.) Korsh. (*C. orientalis* AA.) -- Flowers yellow, large and showy. Leaflets 5 or more, lanceolate, serrate, often trilobed. Tepals 2.5-5.0 cm long. Mid to late summer. Cultivated and sometimes escaping to roadsides, railway embankments, etc. -- S-BC, (US, Eur).

George Bugnet of Légal, Alta., claims the responsibility of having introduced this in cultivation in our region around 1912. His seeds came from India. Today it is fairly often met with in cultivation; it is rather decorative, quite hardy and requires little attention. It does also tend to spread at times and is known as an escape at Edmonton 1941 and Saskatoon 1945. In 1951 we noticed that it was behaving as a weed in the experimental plots at the Indian Head Forest Experiment Station.

#### 11. MYOSURUS L.

#### MOUSETAIL

Receptacle very long, often representing about half the height of the plant. Otherwise much as in *Ranunculus*, but the sepals spurred.

1. *M. minimus* L. var. *minimus* -- (var. *interior* Boivin, var. *lepturus* (Gray) Macoun; *M. lepturus* (Gray) Howell) -- Mouse-Tail (Queue de souris) -- Small annual herb, rather inconspicuous and rarely collected. Leaves all basal, filiform, the limb indistinct from the petiole. Flowers small and insignificant. Spike of achenes 1.5-4.0 cm long. Style 0.2-0.5 mm long, nearly erect. Late spring and early summer. Wet depressions and arroyos. -- O-BC, US, Eur -- Var. *aristatus* (Bentham) Boivin (ssp. *montanus* C.R. Campbell; *M. apetalus* AA.; *M. aristatus* Bentham, ssp. *montanus* (C.R. Campbell) Stone) -- Style longer and more or less divergent, 0.5-1.5 mm long. Spike sometimes elongate, but more often with fewer achenes and less than 1.5 cm long. -- sS-scBC, wUS.

Individuals with a shorter spike (ssp. *montanus*) are infrequent but widespread in the range of var. *aristatus* and would seem to represent only a sporadic extreme of variation.

#### 12. RANUNCULUS

#### CROWFOOT, BUTTERCUP

A basic type for the family. All parts free, regular and spirally arranged on an elongated receptacle. Sepals green, about 5, often caducous. Petals about 5, white or yellow. Stamens about 5 or about a multiple of 5. Carpels numerous, maturing into so many achenes.

a. Submerged aquatics with the leaves finely dissected into numerous filiform segments.

b. Flowers white, axillary ..... 23. *R. aquatilis*



- bb. Flowers yellow, terminal or in a loose terminal cyme ..... 21. R. Gmelinii
- aa. Leaf entire or the segments much broader.
  - c. Leaves elongate, elliptic to linear, entire or sometimes trilobed.
    - d. Flowers white; leaves with a thick petiole often as wide as the limb .. ..... 24. R. Pallasii
  - dd. Flowers yellow.
    - e. Leaves elliptic to lanceolate; stem-leaves alternate ..... 17. R. glaberrimus
    - ee. Leaves narrowly lanceolate to filiform, mostly geminate, opposite or in fascicles ..... 18. R. Flammula
- cc. Leaves broader, ovate to reniform, crenate to compound.
  - f. Carpels pubescent.
    - g. Leaves deeply trifid ..... 4. R. uncinatus
    - gg. Leaves merely crenate or sometimes pedately lobed.
      - h. Basal leaves more or less truncate at base; herbage villous ..... 14. R. cardiophyllus
      - hh. Leaves cuneate at base; herbage puberulent ..... 12. R. inamoenus
  - ff. Carpels glabrous.
    - i. Basal leaves merely crenate, or sometimes pedately trilobed with the central lobe linguiform.
      - j. Low and long creeping ... 22. R. Cymbalaria
      - jj. Taller, erect and tufted or solitary.
        - k. Leaves deltoid-ovate .. ..... 13. R. rhomboideus
        - kk. Leaves reniform, flowers very small ..... 16. R. abortivus
    - ii. Leaves more deeply divided ..... Group A

## Group A

- a. Stem-leaves and inflorescence-leaves all or mostly sessile or on much reduced petioles.
  - b. Plant small, even in fruit not exceeding 1 dm; sepals 2.0-3.5 mm long, the petals as long or shorter ..... 11. R. pygmaeus
- bb. Usually taller, at least in fruit; sepals at least 4 mm long, the petals as long or longer.
  - c. Stem leaves divided into narrowly linear segments, 1-3 mm wide ..... 15. R. pedatifidus
  - cc. Leaf segments broader,  $\pm$  lanceolate, commonly 5 mm wide ..... 9. R. nivalis

- aa. Petioles well developed.
- d. Small creeping plant, about 5 cm high; leaves usually trilobed and otherwise entire ..... 19. R. hyperboreus
  - dd. Much larger and usually erect.
    - e. Leaves compound ..... Group B
    - ee. Leaves simple.
      - f. Stem bearing a single leaf and a single flower ..... 25. R. lapponicus
    - ff. Leaves and flowers more numerous.
      - g. Sepals abruptly reflexed near the middle or the base, the tip pendant.
        - h. Petals usually less than 5 mm long, about as long as the sepals ..... 4. R. uncinatus
      - hh. Petals much longer and much exceeding the sepals ..... 3. R. occidentalis
    - gg. Sepals more or less incurved, commonly spreading.
      - i. Villous or hirsute, especially along the petioles ..... 2. R. acris
      - ii. Glabrous or nearly so.
        - j. Achene beak insignificant, about 0.1 mm long .. ..... 20. R. scleratus
        - jj. Beak longer, 0.5-1.0 mm long ..... 21. R. Gmelinii

## Group B

- a. Flowers small, the petals only 2.5-3.0 mm long and shorter than the sepals ..... 5. R. pensylvanicus
- aa. Flowers larger, the petals longer than the sepals.
  - b. Up to 2 dm high and the leaves usually divided into numerous narrow segments.
    - c. Nearly glabrous; petals about 5 mm long, nearly as wide ..... 10. R. gelidus
  - cc. Appressed pubescent; flowers much larger, the petals about twice as long as wide ..... 8. R. fascicularis
- bb. Usually much taller and the leaves merely trifoliate.
  - d. Petals 4-7 mm long; sepals 3.5-5.0 mm long and abruptly reflexed from near the base ..... 6. R. Macounii
  - dd. Petals and sepals longer, the latter  $\pm$  spreading and somewhat incurved at tip.
    - e. Style  $\pm$  straight, about 2 mm long, the stigma restricted to near the tip ..... 7. R. septentrionalis

ee. Recurved and only  $\pm$  1 mm long;  
 stigma extending on the ventral  
 side for most of the length of  
 the style ..... 1. R. repens

1. R. REPENS L. -- Buttercup (Bassinet, Pied de poule) -- Creeping herb with trifoliate leaves, large yellow flowers and spreading sepals. Becoming ascending or erect in taller and denser grass. Main leaves sometimes biternate. Sepals 5-8 mm long. Petals about half longer, 7-13 mm long, obovate to obdeltoid. Style about 1 mm long. Late spring to mid summer. Rare weed, mainly in lawns: Banff, Miette. -- G, Aka, L-SPM, NS-O, swAlta-BC, US, CA, Eur -- Cv. PLENIFLORUS -- Flowers double. Leaflets commonly broader. Naturalized in roadside ditches at Hillspring. -- O, swAlta-BC.

Two collections have also been cited for Manitoba by Scoggan 1957. Dudley, Sandilands, 1930 (WIN; DAO, photo) has been revised to R. septentrionalis. The other collection has not been located yet.

2. R. ACRIS L. var. ACRIS -- Buttercup (Bouton d'or) -- About 3-6 dm and almost skeletal, the elongate stem and branches usually bearing only one fully developed leaf. The latter palmate-partite, the segments more or less lanceolate and coarsely lobed and toothed. Petals 7-13 mm long, at least twice as long as the sepals. Achenes glabrous in a round head. Mid spring to mid summer. Roadsides, ditches and wet prairies. -- G, Aka, L-SPM, NS-BC, US, Eur -- Var. LATISECTUS G. Beck (var. Stevenii AA.) -- Leaf segments broader, rhomboid to obovate. Mid summer to early fall. -- NS-(PEI), Q-Man, Alta-BC, US, Eur.

The taxonomic value of var. latisectus was discussed by Boivin 1951.

3. R. occidentalis Nutt. var. brevistylis Greene -- Rather like the following but the flowers and achenes larger. Glabrous or merely soft pubescent. Petals 7-15 mm long, commonly oblong and about twice as long as the abruptly reflexed sepals. Achenes 2-3 mm long. Style about half as long, straight to recurved. Early summer. Mountain prairies. -- (Y-Aka), wcAlta-(BC).

The typical and more coastal phase is hirsute. In 1951 we did identify and distribute as R. occidentalis a number of MacKenzie collections. These have since been revised to R. Macounii.

4. R. uncinatus D. Don (var. parviflorus (Torrey) Benson) -- Sepals abruptly reflexed at or below the middle and the leaves deeply trifid. Petals oblong to obovate, commonly about 3 mm long and about as long as the sepals. Carpel about 2 mm long. Style 1.5-2.0 mm long and strongly recurved at tip. Late spring and early summer. Moist mountain woods. -- Mack, Aka, Alta-BC, US, (CA).

Often subdivided in two varieties, with var. parviflorus designating the phase with the achenes and foliage hirsute, while the typical phase is glabrous. Both variations have about

the same distribution and seem to be equally frequent in Canada. We have examined specimens with glabrous achenes ranging from Vancouver Island to northern Alberta.

5. R. pennsylvanicus L. f. -- Leaves trifoliate and the flowers small with abruptly reflexed sepals. Strongly hirsute throughout. Petals 2.5-3.0 mm long, slightly shorter than the sepals. Fruiting head elongate-oblong. Style short. All summer. Wet woods near water. -- Mack, Aka, L-NF, (NS-PEI)-NB-BC, US, (Eur).

6. R. Macounii Britton var. Macounii -- Rather coarse species with trifoliate leaves, the sepals abruptly reflexed from near the base. Coarsely hirsute. Sepals 3.5-5.0 mm long. Petals 4-7 mm long, obovate. Carpels 2-3 mm long, the style about 1 mm long. Early summer. Wet open places. -- K-Y-Aka, NF), Q-BC.

West of us it grades into a var. oreganus (Gray) K.C. Davis, glabrous or nearly so and often smaller, commonly about 3 dm high.

7. R. septentrionalis Poiret -- Tufted, the main stem erect, the others tending to be decumbent and rooting at the nodes. Otherwise much as the preceeding but the flowers and fruit larger, the sepals spreading and longer. Petals 8-15 mm long. Carpel body 3-4 mm long, the style about 2 mm long. Early summer. Wet ground, often in woods. -- (PEI)-NB-Man, US.

Pubescence is variable and the type with the petioles and lower part of stem hispid-retrorse has been distinguished as var. caricetorum (Greene) Fern., a type perhaps more frequent around the Great Lakes, but it is also sporadic from New Brunswick to Manitoba and does not appear to be geographically restricted.

8. R. fascicularis Muhl. var. fascicularis -- Buttercup, Early Buttercup -- Small and tufted, with numerous fleshy and more or less tuberous roots. Leaf at least trifoliate, more commonly divided into numerous  $\pm$  lanceolate segments. Petals oblong, about 1 cm long. Mid spring. Dry, grassy hillsides: Falcon Lake. -- sO-seMan, US.

An earlier report for Manitoba was based on a collection from Cartwright Point near Kingston, Ont.

Saskatchewan reports are frequent and they all go back to a justifying sheet labelled "Dr. Richardson 1080, New York and Cumberland House" (CAN; DAO, photo). Considering the alternate locations, it would seem more sensible to credit this Richardson collection to New York State where the species is common rather than to Saskatchewan where it would represent a disjunction of some 500 miles from the rest of the range.

In our typical variety the leaflets tend to be cut into oblong to linear lobes, while towards the southwest it grades into a var. apricus (Greene) Fern. in which the segments tend to be entire or few-toothed and elliptic to oblanceolate.

9. R. nivalis L. var. nivalis -- The back of the sepals and the top of the peduncle densely hirsute with dark brown to blackish hairs. Stiffly erect and 1-3 dm high, usually with a

single flower and 1-3 stem leaves. Leaves tripartite to palmatipartite, the stem ones subsessile. Flower large and showy. Fruiting head elongate. Summer. Wet tundra, especially late snow patches: Churchill. -- G-K-(Mack)-Y-Aka, L, nQ, nMan, nBC, Eur -- Var. Eschscholtzii (Schlecht.) Watson (R. Eschscholtzii Schlecht., var. Suksdorfii (Gray) Benson; R. verecundus Rob.) -- Pubescence of pale yellow hairs on the sepals and peduncle. Alpine prairies, especially around snow fields. -- Y-Aka, Alta-BC, US.

10. R. gelidus Kar. & Kir. -- Inconspicuous and half buried in loose shale, the stem about 5 cm high and bearing only 1-3 leaves. Glabrous or nearly so. Leaves small, at least trifoliate and divided into numerous  $\pm$  lanceolate segments. Flowers 1-(3) on long peduncles. Early spring. Alpine scree slopes. -- (Mack, Aka), Alta-(BC), US, (Eur).

The range is extended to Yukon by Hultén 1944 but this may be only a lapsus calami as no specimen is cited and no corresponding dot appears on the map of the species.

11. R. pygmaeus Wahl. -- Much like R. nivalis, but generally smaller, as small as R. hyperboreus, the latter with a creeping stem bearing many leaves on long petioles. Glabrous to lightly pubescent, the pubescence pale. Stem about 5 cm high at flowering, elongating up to 1 dm in fruit, bearing a single leaf on a short, winged petiole. Petals 1.5-3.5 mm long, usually shorter than the sepals. All summer. Wet rocky slopes, especially around late snow patches. -- G-K-(Mack-Y)-Aka, L, Q, swAlta-BC, US, Eur.

12. R. inamoenus Greene var. inamoenus (var. elator Boivin) Carpels densely pubescent and the crenate basal leaves rounded to cuneate at base. More or less appressed-pubescent and 2-6 dm high. Leaves variable, the basal ones sometimes lobed, the others always lobed. Petals 3-6 mm long. Fruiting head cylindric, 8-20 cm long. Late spring and early summer. Shaded, moist places. -- swS-BC, US.

The more western var. alpeophilus (Nelson) Benson in which the foliage and achenes are glabrous has been collected at Yoho.

13. R. rhomboideus Goldie (R. ovalis Raf.) -- Similar to the preceding but smaller, the flowers larger and the glabrous achenes forming a globose head. Up to 2 dm high and  $\pm$  pilose. Basal leaves rhomboid-ovate, usually merely crenate. Petals 5-9 mm long, rather oblong. All spring. Wetter prairies. -- sMack, O-BC, US.

14. R. cardiophyllus Hooker var. cardiophyllus (R. pedatifidus Sm. var. cardiophyllus (Hooker) Britton) -- Carpels densely pubescent like R. inamoenus, but the basal leaves hastate and the flowers very large. Uniformly long villous throughout and 2-4 dm high. Basal leaves crenate to palmatilobed, cordate to truncate at base. Petals shiny, 10-13 mm long. Fruiting head 10-15 mm long. Early summer. Wetter prairie spots. --S-BC, US-- F. apetalus (Farr) Boivin (R. apetalus Farr) -- Petals (and sometimes sepals) lacking. -- swS-Alta, (US).



In the southwestern U.S.A. there occurs a var. subscagittatus (Gray) Benson, smaller and bearing a smaller head of achenes, usually only 5-6 mm long.

15. R. pedatifidus Sm. var. leiocarpus (Trautv.) Fern. (var. affinis (Br.) Benson; R. affinis Br.) -- Resembling the more dissected phase of R. cardiophyllus, but the segments narrower and the plant nearly glabrous throughout, yet the sepals long-villous and the peduncle short-pubescent. 1-3 dm high. Leaves pedatipartite into entire and narrowly linear segments. Petals 8-10 mm long. Fruiting head ovoid. Early summer. Rocky tundra. -- G-Aka, L-(NF), Q-(O)-nMan, swAlta, (US, Eur).

The range has been extended to B.C. by many authors, but all specimens met with in various herbaria were eventually revised to R. inamoenus var. inamoenus.

9 collections have been cited for Saskatchewan. We have examined 4 of them and all proved to belong to R. cardiophyllus, being more pubescent, with less deeply cut basal leaves, more elongate head of fruits, etc.

The typical variety has puberulent achenes. It occurs primarily in the Altai and other mountain ranges of central Asia, with a limited American range. In the more northern parts of Asia and over most of its North American range it is replaced by the glabrous-fruited var. leiocarpus. The latter name has priority at the varietal rank as will be seen by the following synonymy:

Var. leiocarpus (Trautv.) Fern., Rhodora 19: 138. 1917; R. affinis Br., Bot. App. Pary's Voy. 265. 1823; R. affinis Br. var. leiocarpus Trautv., Midd. Reise 1: 62, 1817; R. pedatifidus Sm. var. affinis (Br.) Benson, Am. Midl. Nat. 52: 355. 1954.

Var. leiocarpus has recently, Am. Midl. Nat. 52: 354-5, 1954, been rejected for our plant as of uncertain application. However the type of var. leiocarpus comes from the Taimir Peninsula, an area where only the glabrous-fruited (as its name states) phase occurs and we see no reason to question the applicability of var. leiocarpus to our plant.

16. R. abortivus L. var. abortivus (var. acrolasius Fern.) -- Thin-leaved forest species with reniform and crenate basal leaves. Inflorescence and stem leaves pedately divided. Flowers very small. Petals 1.2-2.8 mm long, slightly shorter than the abruptly reflexed sepals. Achenes glabrous and small, the beak minute. Late spring and early summer. Rich woods near water-courses. -- sMack-Aka, L-SPM, NS-BC, US.

Varies sporadically from glabrous to finely puberulent above. The latter phenotype is var. acrolasius, but such puberulent specimens have often been identified and reported upon as var. micranthus (or R. micranthus). All Canadian reports of the latter proved to be incorrect. This more southern var. micranthus (Nutt.) Gray is more or less villous throughout with hairs  $\pm$  1 mm long.

17. R. glaberrimus Hooker var. Buddii Boivin (R. Buddii Boivin) -- Basal leaves elliptic to lanceolate, entire. The

whole plant glabrous, except the carpels. About 1 dm high. Achenes very numerous, in a globose head. First half of spring. Wet prairies and creek valleys. -- S-S-BC, US -- F. monochlamydeus Boivin -- Petals lacking or only 1-2 per flower. -- S-- Var. ellipticus Greene -- Carpels glabrous: Mortlach. -- S-(Alta)-BC, US.

18. R. Flammula L. var. ovalis (Big.) Benson (R. reptans L. var. ovalis (Big.) T. & G.) -- Low and long-creeping, with narrow leaves mostly in 2's or in rosettes. Puberulent. Stem at first about 2 dm high, soon decumbent and rooting at the nodes. Leaves narrowly lanceolate, about 5 mm wide. Flower most often terminal and single, about 1 cm across. Mid summer. Wet prairies. -- Mack, (Aka, NS), O, S-BC, US -- Var. filiformis (Mx.) Hooker (R. reptans L.) -- More creeping, nearly glabrous and the leaves narrower, more or less filiform and 1-(3) mm wide. Flower 6-10 mm wide. Shores, fresh or saline. -- (G), K-(Mack-Y)-Aka, L-SPM, NS, NB-S-(Alta-BC), US, Eur.

There is some disagreement about the taxonomic treatment of our varieties and as a result var. ovalis has often been used in the sense of var. filiformis. Hence a fair amount of confusion in the botanical literature. Accordingly our statement of the distribution of var. ovalis is largely restricted to such regions as we have been to confirm through the examination of specimens.

19. R. hyperboreus Rottb. var. hyperboreus -- Small creeping plant with the leaves typically trilobed, the lobes entire. Only about 5 cm high or less. Glabrous throughout. Leaves about 5 mm wide, cuneate to rounded at base. Petals only 2-3 mm long. All summer. Shores and very wet places. -- G-K-(Mack)-Y-Aka, L-(NF), Q-nMan, NWBC, US, Eur -- Var. intertextus (Greene) Boivin (R. natans C.A. Meyer var. intertextus (Greene) Benson) -- Generally larger. Leaves rather reniform, about 1 cm wide and commonly  $\pm$  cordate at base and palmately 5-lobed. Flowers a little larger, the petals 3-4 mm long. Rockies--Y, Alta, US.

Reports of var. hyperboreus by Benson 1948, Moss 1959, Hitchcock 1964 and Boivin 1966 from Raup Lake in northern Alberta were based on a sheet (CAN) since revised by A.E. Porsild and W.J. Cody to R. abortivus.

20. R. sceleratus L. (var. multifidus Nutt.) -- (Mort aux vaches, Herbe de feu) -- Achene beak minute like R. abortivus and all leaves trifid, the segments  $\pm$  trilobed, the lobes  $\pm$  3-toothed, like the terrestrial form of the following. Erect and nearly glabrous. Stem thick, with a large central cavity. Petals 3.5-5.0 mm long. Achenes  $\pm$  1 mm long, very numerous. Style  $\pm$  0.1 mm long. First half of summer. Very wet places. -- Mack-Aka, NF-SPM, (NS, NB)-Q-BC, US, Eur.

21. R. Gmelinii DC. (var. Hookeri (D. Don) Benson, var. limosus (Nutt.) Hara; R. Purshii Rich.) -- Submerged aquatic with finely dissected leaves and yellow flowers. Often terrestrial and creeping, the leaves then trifid to palmatifid, the segments  $\pm$  trilobed, the lobes  $\pm$  3-toothed. Achene beak 0.5-1.0 mm.

First half of summer. Shallow waters and muddy shores. -- F-Aka, NF, NS-BC, US, (Eur).

Exceptional collections are transitional to R. flabellaris Raf., the latter not otherwise present in our area.

Previous western reports of R. flabellaris are however quite numerous: 5 or 6 localities in Manitoba, reputedly common in Saskatchewan, one locality (Red Deer) in Alberta, and 4 or 5 localities in B.C. In an effort to ascertain the presence or absence of R. flabellaris west of Ontario, we have borrowed for study all the specimens so identified or cited from all the major relevant herbaria.

The two species may be contrasted as follows.

R. Gmelinii: leaves 1.5-2.5-(9.0) cm wide, palmatipartite to bipalmatipartite, sepals 2.5-6.0 mm long; petals 4-7 mm long; anthers 0.5-1.0 mm long; achene without corky ridge, the body 1.0-1.5 mm long, the beak 0.5-1.0 mm long.

R. flabellaris: leaves 2-12 cm across, triternatipartite to quadraternatipartite; flowers often more numerous; sepals 5-8 mm long; petals 7-15 mm long; anthers 1.0-1.5 mm long; achene with a marginal corky ridge along one side, the body  $\pm$  2 mm long, the beak  $\pm$  1.5 mm long.

Most western specimens proved to belong to R. Gmelinii and were so revised. Only one western specimen (from B.C.) clearly belonged to R. flabellaris, namely: J.A. Munro, Kootenay Flats, May 18, 1949 (V; DAO, photo). Another B.C. specimen, Eastham 10980 from Werner (UBC; DAO, photo), while being intermediate, was clearly closer to R. flabellaris.

No other specimen from west of Ontario could be clearly referred to R. flabellaris, but quite a few were intermediate in one way or another. Mostly these intermediates had submerged leaves large enough and dissected enough to be referred to R. flabellaris, but their floral characters were less than convincing. These intermediates were as follows.

MANITOBA: Scoggan 10961, Boissevain (CAN, MT, WIN): petals 5-6 mm; anthers 0.8-1.0 mm; achenes small and without corky crest; body of the achene 1.5-1.8 mm; beak 0.5 mm. -- Scoggan 10684, Portage La Prairie (CAN, WIN, MT; DAO, photo): petals 5-9 mm; anthers 1.2-1.5 mm; achenes small and without corky crest; body of the achene 1.2 mm; beak 0.5 mm.

SASKATCHEWAN: none.

ALBERTA: H.H. Gaetz, Red Deer (CAN, DAO, photo): petals 8-9 mm; anthers 1.2-1.5 mm; no ripe achenes, but the immature ones are rather small; submerged and emerged leaves more like those of R. Gmelinii. This was cited as R. flabellaris in Am. Midl. Nat. 40: 212. 1948. -- Moss 8863, Mackenzie Highway (DAO); petals 5.0-5.5 mm; anthers 0.5-0.6 mm; but the leaves very large and much dissected.

B.C.: Eastham 10980, East of Werner (UBC; DAO, photo): petals 7 mm; anthers 0.8 mm; achenes rather small, with a weak corky ridge, the body 1.5 mm; beak 0.7-1.2 mm; leaves wide and much dissected. -- Eastham 10980a, West of Werner (UBC, V).

RANUNCULUS

The sheet at V is practically identical to 10980, but the one at UBC is not: petals 5.0-5.5 mm; anthers 0.8-1.0 mm; achenes rather small and variable, some without corky ridge, others with a weak ridge; leaves large and much dissected. -- R.T. Ogilvie, Copper Mountain (UBC) petals 5-6 mm; anthers 1.2 mm; leaves varying from typical of the one species to typical of the other -- Calder & alii 13418, Houston (DAO): petals 8 mm; anthers 1.2 mm; otherwise similar to R. Gmelinii.

Considering that typical R. flabellaris is completely lacking from the Prairie Provinces, we are of the opinion that the intermediate specimens detailed above from Manitoba and Alberta are to be considered as extremes of variation of R. Gmelinii.

In view of the many intermediates in our area and in the rest of the range of the two taxa discussed, it would seem more realistic to revert to the older treatments of G. Don and Regel and present them as varieties of the same species. Hence the following transfer. R. Gmelinii DC. var. multifidus (Pursh) stat. n., R. multifidus Pursh, Fl. Am. Sept. 2: 736.1814 (nec Forsk. 1875); R. Purshii Rich. var. multifidus (Pursh) D. Don ex G. Don, Gen. Syst. Gard. 1: 33.1831; R. radicans C.A. Meyer var. multifidus (Pursh) Regel, Bull. Soc. Imp. Nat. Moscou 34, 2: 45.1861; R. flabellaris Raf.; R. delphiniifolius Torrey.

The sheet reported by Löve 1959 from Otterburne (MT; DAO, photo) as R. flabellaris f. riparius Fern, has been revised to R. Gmelinii.

22. R. Cymbalaria Pursh (var. saximontanus Fern.; Halespertes Cymbalaria (Pursh) Greene) -- Small creeping herb with ovate and crenate leaves. Erect shoots leafless, merely bracteolate and bearing 1-3 flowers. Leaves in tufts of 2 or more. Late spring to mid-summer. Shores and ditches, wherever the water is ± alkaline. -- G-(F)-K-Y-(Aka), L-SPM, NS-BC, US, (SA), Eur.

23. R. aquatilis L. var. capillaceus (Thuill.) DC. (R. trichophyllum Chaix; Batrachium trichophyllum (Chaix) Bosch) -- (Herbe aux écrevisses) -- Submerged aquatic with white flowers and finely dissected leaves. Leaves flaccid, usually deep green. Petiole commonly around 1 cm long with adnate stipules, the free part of the petiole clearly longer than the adnate part. Achene beak short. Early summer. Quiet and shallow waters. -- K-(Mack-Y)-Aka, (L)-NF, NS-BC, US, (CA, SA), Eur -- Var. eradicatus Laest. -- Generally smaller, the stem only 0.4-1.0 mm thick. Cold waters. -- G-Mack-(Y-Aka, L-NF), NS, Q-(O)-Man, Alta, (US), Eur -- Var. subrigidus (W.B. Drew) Breitung (R. circinatus Sibth. var. subrigidus (W.B. Drew) Benson; R. subrigidus W.B. Drew) -- Leaves stiffer and often grayish. Petiole shorter, often reduced to its stipular base or nearly so. Beak of the achene (0.1)-0.2-(0.5) mm long. Early to mid-summer. Marshes and ditches, especially abundant in prairie sloughs. -- F, Mack, (NF), Q-BC, US, (CA) -- Var. longirostris (Godron) Lawson (R. longirostris Godron; Batrachium longirostre (Godron) F. Schultze) -- Much as in var. subrigidus, but the beak of the achene (0.5)-1.0-(1.5) mm long. Mid summer. Quiet



shallow waters. -- Q-O, sWS-Alta, US.

Highly variable and much divided species. We have finally rallied to the treatment of Benson 1948 in which all the segregates are reduced to varietal rank; it seems to be a realistic and practical treatment. The following key will summarize our current view of this species as it occurs in Canada.

- a. Floating leaves present and merely trilobed--  
(Mack, Aka), BC ..... var. hispidulus E.R. Drew
- aa. All leaves submerged and finely dissected.
  - b. Foliage pubescent -- F-neK ..... var. Codyanus Boivin
  - bb. Glabrous.
    - c. Beak of the achene (0.5)-1.0-(1.5)  
mm long ..... var. longirostris
    - cc. Shorter, (0.1)-0.2-(0.5) mm long.
      - d. Achenes 2.0-2.5 mm long --  
seQ ..... var. Lalondei Benson
      - dd. Achenes clearly smaller.
        - e. Leaves stiff and mostly grayish;  
petiole mostly reduced to its  
dilated (stipular) base ... var. subrigidus
        - ee. Leaves flaccid; petiole commonly  
rather long, usually many times  
longer than the stipular base.
          - f. Stem thin, 0.4-1.0 mm thick,  
commonly a much reduced  
plant ..... var. eradicatus
          - ff. Thicker.
            - g. Receptacle hirsute,  
the hairs in tufts ..  
..... var. capillaceus
            - gg. Glabrous to lightly  
pubescent -- (NF), NS,  
(NB)-Q-(O, US) .....  
..var. calvescens (W.B.Drew) Benson

Var. Codyanus (Boivin) stat. n., R. Codyanus Boivin, Can. Field-Nat. 65: 3-4. 1951. All our other varieties are already available at varietal rank.

The typical phase is eurasian. It has floating leaves like those of var. hispidulus and somewhat larger flowers, the petals 9-14 mm long.

A report of R. trichophyllus from Baffin Island by Hultén 1944 is undoubtedly to be interpreted in the sense of var. eradicatus. Similarly, all the Greenland specimens under R. trichophyllus that we have examined have been revised to other varieties, usually var. eradicatus.

24. R. Pallasii Schlecht. -- Soft plant with large petioles, nearly as large and much longer than the limb. A short plant, stoloniferous and bearing only a few leaves and flowers.



Leaves narrowly lanceolate, entire to coarsely 3-lobed. Flower white, large. Carpels numerous, large. Mid summer. Very wet places and shallow waters among mosses. -- F-Aka, (L), Q-Man, Eur.

25. R. lapponicus L. (Coptidium lapponicum (L.) Gaud.) -- Half-burried in bog mosses and the achenes longest. Long stoloniferous. Leaves few, alternate on the rhizome, solitary on the stem. Petioles long. Limb trifid, the segments crenate to lobed. Sepals only 3. Achenes few, about 5 mm long, with a hooked beak. Early summer. Spruce bogs. -- G-Aka, L, Q-Alta-(BC), US, Eur.

### 13. THALICTRUM L.

### MEADOW-RUE

Like Ranunculus, but the perianth of a single verticil and the achene wall more or less inflated, not closely enveloping the seed. Leaves ternately divided into numerous leaflets.

- a. Flowers perfect, axillary ..... 1. T. sparsiflorum
- aa. Flowers commonly dioecious, borne in  
bracteolate terminal panicles.
  - b. Filaments white; leaflets oblong  
and pubescent below ..... 4. T. dasycarpum
  - bb. Filaments purplish; leaflets  $\pm$   
flabelliform, glabrous to finely  
glandular below.
    - c. Peduncles widely spreading and  
of nearly equal length; achene  
slightly compressed and reflexed ..  
..... 2. T. occidentale
    - cc. Peduncles ascending and of widely  
varying lengths; carpels neither  
flattened nor reflexed ..... 3. T. venulosum

1. T. sparsiflorum Turcz. var. Richardsonii (Gray) Boivin  
-- Each flower subtended by a reduced, yet compound, leaf. Finely glandular-puberulent. Flowers white, perfect. Filaments white, thickened. Peduncle strongly recurved below the fruiting head. Achene strongly flattened, semi-orbicular. Late spring. Forest creeks. -- Mack-Aka, nO-BC, US.

In our variety all the flowers are borne in the axil of a reduced but compound leaf and the stipe of the fruit is 1.2-3.0 mm long. The typical and asiatic phase has longer stamens and somewhat narrower achenes, while two western U.S. vicariants, var. nevadense Boivin and var. saximontanum Boivin, have some of the flowers usually borne in the axil of mere bracts and their achenes have a shorter stipe, 1 mm long or less.

2. T. occidentale Gray var. palousense St. John -- Achenes  $\pm$  sigmoid and reflexed. Leaflets mostly flabellately trilobed; the lobes 3-toothed. Inflorescence often nearly reduced to a single terminal raceme. Filaments 5-10 mm long, purplish. Stigma 3.0-4.5 mm. Early summer. Woods. -- (seAka), swS-BC, US.

The more western var. Macounii Boivin is a taller plant with a more ample and more leafy inflorescence, commonly 2-4 dm long, a longer stigma, 5-6 mm long and the achenes merely spreading at maturity.

3. T. venulosum Trel. var. venulosum -- Commonly 3-4 dm high. Stiffly erect with a large terminal panicle. Glabrous or minutely glandular-puberulent. Leaflets as in the preceding. Peduncles varying greatly in size, the longest at least twice as long as the shortest but averaging less than 2 cm in length and mostly 2 per node. Filament purplish, 3-4 mm long. Stigma 1.0-2.5 mm. Achene not compressed, ascending, straight or incurved, its body 3-4 mm long. Early summer. Prairies. -- K-Mack, wQ-BC, US -- Var. Turneri Boivin (T. Turneri Boivin) -- Larger. Mostly 6-9 dm high. Peduncles mostly 3-5 per node and averaging 2-3 cm long. Filaments 4-5 mm long. Stigma about 2 mm long. Body of the fruit 4.0-4.5 mm long. Aspen groves. -- Mack-Y, Man-BC, US -- Var. Lunellii (Greene) Boivin (T. confine AA.; T. Lunellii Greene) -- Still larger, 1-2 m high and usually half supported by the adjacent vegetation in which it often gets entangled. Stigma 3.0-4.5 mm long. Body of the fruit 5.0-6.5 mm long. Mainly at the inner edge of galerie-forests along the Red River and tributaries. -- scMan, ncUS.

An old collection by Bell at York Factory (QK; DAO, photo) was once reported as T. Cornuti L. and more recently as T. dasycarpum. It belongs to var. venulosum.

Eastward these varieties grade into var. confine (Fern.) Boivin. Reports of the latter from Manitoba were based on a sheet of var. Lunellii. Reports of T. dioicum L. from our area were based mainly on var. Turneri.

4. T. dasycarpum Fisch. & Lall. var. dasycarpum -- Middle and upper stem-leaves sessile or nearly so. Not glandular, but pubescent, at least on the lower surface of the leaflets. Leaflets coriaceous, mostly trilobed. Peduncles about 1 cm long. Filaments white. Anthers 1.8-2.2 mm long. Stigma 2-3 mm long. Carpels and achenes nearly always pubescent. Early summer. Woods and wet meadows. -- wQ-BC, US -- Var. hypoglaucum (Rydb.) Boivin -- Larger. Leaflets thin, usually glaucous below, often glabrous and mostly larger. Anthers 2.3-3.2 mm long. Stigma 2.5-5.0 mm long. -- swAlta-BC, US.

#### 61. CABOMBACEAE

(FANWORT FAMILY)

Placentation parietal. Flower 3-merous.

#### 1. BRASENIA Schreber

WATER-SHIELD

Carpels numerous. Leaves peltate.

1. B. Schreberi Gmelin -- Water-Shield, Purple Wen-Dock -- Aquatic with peltate floating leaves, the limb elliptic and entire. All submerged parts very slippery, being covered by a thick, clear and gelatinous substance. Second half of summer. Muddy lakes; Lily Pond. -- Aka, NS-(PEI)-NB-Man, BC, US, (CA), Eur, (Afr, Oc).

THALICTRUM

A single collection from our area: Boivin & Champagne 14187, Réserve Forestière Whiteshell, Lily Pond, l'extrémité de chaque rameau dressé porte un groupe de bourgeons qui se détache très facilement, 25 septembre 1960 (DAO).

## 62. CERATOPHYLLACEAE

(HORNWORT FAMILY)

Single genus.

## 1. CERATOPHYLLUM L.

HORNWORT

Submerged aquatics with reduced flowers. Perianth simple. Flowers monoecious. Female flower with a single carpel maturing into an achene.

1. C. demersum L. -- Coontail -- Submerged aquatic, with very inconspicuous flowers. Leaves verticillate, dichotomously divided into filiform segments, the latter remotely serrulate. Flowers axillary, short pedicelled. Early summer. Forming large masses in quiet waters. -- NS-BC, US, CA, Eur.

## 63. NYMPHAEACEAE

(WATER-LILY FAMILY)

Carpels united or buried into the receptacle. Otherwise much like the Ranunculaceae. Aquatics with large floating leaves and flowers.

- a. Petals large, very numerous, white ..... 1. Nymphaea  
 aa. Petals very small, the flower conspicuous  
 mainly by its 5 yellow sepals ..... 2. Nuphar

## 1. NYMPHAEA L.

WATER-LILY

Large and very showy floating flowers white, with numerous petals. Leaves also floating. Sepals 4.

- a. Sepals 4-7 cm long; leaves large ..... 1. N. odorata  
 aa. Sepals 1.5-3.0 cm long; leaves small ..... 2. N. tetragona

1. N. odorata Aiton var. odorata (Castalia odorata (Aiton) Woodv. & Wood) -- Water-Lily, Pond-Lily (Nénuphar blanc, Lis d'eau) -- Large roundish floating leaves mostly 1-2 dm across. Peduncle inserted at or below the middle of the blade. Limb entire, the basal sinus not reaching beyond the middle of the leaf. Flower 8-15 cm across, floating. Mid to late summer. Muddy lakes. -- NF, NS-seMan, US.

The more eastern var. maxima (Conard) Boivin has somewhat larger flowers, the leaves twice larger, and the petioles striped longitudinally in purplish, the akebage not otherwise purplish.

2. N. tetragona Georgi var. Leibergii (Morong) Boivin (N. Leibergii Morong) -- Quite similar to the preceeding, but generally much smaller. Leaves 3-8 cm wide, slightly obovate, with a deep sinus, reaching at least to the middle, and usually more open. Flowers 3-6 cm wide. Nearly all summer. Usually in acid and boggy lakes, often in very deep water, hence rarely collect-

ed. -- (Mack)-Aka, Q-BC, US, Eur, (Oc).

Typical var. tetragona has somewhat larger leaves with a not so deep and less open sinus.

## 2. NUPHAR Sm.

Sepals and petals 5, the former yellow, the latter very small. Otherwise as the preceding.

- a. Disk of ovary red; leaves small ..... 1. N. microphyllum  
 aa. Disk yellowish-green; leaves large ..... 2. N. variegatum

1. N. microphyllum (Pers.) Fern. (Nymphaea microphylla Pers.) -- (Petit nénuphar jaune) -- Like the following, but generally smaller. Floating leaves elliptic-ovate, less than 1 dm long. Sepals 1.5-2.0 cm long. Summer. Ponds and muddy lakes. -- (NF), NS, NB-Man, US.

2. N. variegatum Eng. (Nymphaea advena AA.) -- Beaver-Root, Bobber, Pond-Poppy (Grand Nénuphar jaune, Pied d'original) -- Aquatic with large floating leaves and large yellow flowers usually borne just above water-level. Leaves elliptic, 1-3 dm long. Sepals 2.0-3.5 cm long, often reddish towards the base. First half of summer. Quiet waters. -- (Mack-Y), L-(NF-SPM, NS-NB)-Q-(O)-Man-Alta-(BC), US.

## Order 35. BERBERIDALES

Similar to the Ranales but the floral parts in 3's or 6's and the carpels often reduced to a single one. Stem often secondarily woody. Stamens opposite the petals.

- a. Carpel 1. .... 64. Berberidaceae  
 aa. Carpels 3-6 ..... 65. Menispermaceae

## 64. BERBERIDACEAE (BARBERRY FAMILY)

Shrubs or semi-shrubby herbs. Petals 6, in two series. Stamens also 6 and opposite the petals.

- a. Herb with ternately compound leaves ..... 1. Caulophyllum  
 aa. Shrub with simple or pinnate leaves ..... 2. Berberis

## 1. CAULOPHYLLUM Mx. BLUE COHOSH

Petals reduced to minute appendages opposite the sepals. Ovary soon ruptured by the fast growing seed. The mature fruit a stipitate drupe.

1. C. thalictroides (L.) Mx. var. thalictroides -- Papoose Root, Blue Cohosh (Graines à chapelet) -- Only two leaves; the lower one 3 times ternate and, being sessile, looks like a verticil of 3 leaves, each twice ternate; upper leaf much smaller. A coarse herb, dark green and glaucous. Inflorescence small. Fruits dark blue. Early spring. Deciduous woods; probably an Indian introduction: Portage, East Selkirk. -- NS, NB-Man, (US, Eur).

Our plant is green, with sepals 4-5 mm long, petals  $\pm$  1.5 mm wide, anthers  $\pm$  0.7 mm long, and the style 0.2-0.6 mm long. The more eastern and more restricted var. giganteum Farw. is more or less purplish and has larger floral parts, sepals 6-8 mm long, petals  $\pm$  2 mm wide, anthers 1.2 mm long and the style 1.0-1.7 mm long.

## 2 BERBERIS L.

## BARBERRY

The typical genus of the family. Sepals 6, subtended by 3 bracts. Petals 6, opposite the sepals. Stamens 6, opposite the petals. Carpel solitary. Shrubs.

Commonly subdivided into two genera with Berberis for the simple-leaved species and Mahonia for the others. This single character is not linked to any of the more fundamental variations in inflorescence and floral structures. Quite the contrary, the variations of the latter tend to form parallel series in Berberis and Mahonia. We are not therefore accepting this subdivision because it appears to be too artificial in its nature.

- a. Leaves simple ..... 1. B. vulgaris  
 aa. Leaves compound ..... 2. B. Aquifolium

1. B. VULGARIS L. -- Barberry (Epine-vinette) -- Spiny shrub with the leaves in clusters. Spines often trifurcate, subtending the leaf-clusters. Leaves obovate to oblanceolate, spinulose-serrate. Flowers yellow, in pendulous racemes. Fruit red. Late spring. Planted and tending to reseed itself in nearby bush, but now systematically eradicated and nearly eliminated because it is host to a very noxious wheat-rust. -- NS-(PEI)-NB-Man, BC, US, Eur.

2. B. Aquifolium Pursh (Mahonia Aquifolium (Pursh) Nutt.) -- Holly, Mahonia (Houx) -- Leaflets thick and spiny-dentate. Shrub about 1 m high. Leaves alternate, pinnate, with 5-7 sessile leaflets. Flowers golden yellow in showy clusters of erect racemes. Fruit blue. Late spring and early summer. Lightly wooded slopes. -- swAlta- BC, US -- F. repens (Lindley) Boivin (Mahonia repens (Lindley) G. Don) -- Stems and branches more or less decumbent and rooting, their erect tips up to 4 dm high. Leaflets often not shiny. -- swAlta-BC, US.

The more common f. repens is usually treated as a species, but it seems to behave rather like an ecological form of drier and more open habitats.

## 65. MENISPERMACEAE

## (MOONSEED FAMILY)

Similar to Berberis, but the carpels commonly 3.

## 1. MENISPERMUM L.

## MOONSEED

Atypical in this that the floral parts are in 4's. Sepals 4 or 8; petals 4 or 8; stamens 12-24; carpels 2 or 4.

1. M. canadense L. -- Moonseed, Yellow Parilla (Raisin de couleuvre) -- Climber with lightly wooded twining stems and



large leaves peltate near the margin. Leaves rather polygonal, with mostly 5-7 shallow lobes, but sometimes entire. Inflorescences nearly, but not quite, axillary. Flowers small. Fruit a dark blue drupe. Early summer. Galerie-forests. -- Q-sMan, US.

### Order 36. ARISTOLOCHIALES

Floral parts in 3's as in the Berberidales, but the sepals more or less fused, the petals lacking and the ovary more or less inferior.

#### 66. ARISTOLOCHIACEAE (BIRTHWORT FAMILY)

Not parasitic and the flowers perfect. Calyx petaloid.

##### 1. ASARUM L.

WILD GINGER

Flower with 12 stamens and a semi-inferior ovary.

1. ~~A. canadense~~ L. var. acuminatum Ashe (var. reflexum AA.) -- Wild Ginger, Colicroot (Gingembre sauvage) -- A forest floor species with 2 large velvety leaves and a hidden purple flower. Leaves reniform, entire. Flower solitary, more or less hidden under the dead leaves. Calyx-lobes long acuminate. Late spring. Deciduous forests. -- swQ-sMan, US.

In the more eastern var. canadense the calyx lobes have an ovate to elliptic blade abruptly contracted to a linear appendage 0.5-1.5 cm long. In our variety the limb is narrower, ± lanceolate, and more gradually attenuate to an appendage less than 2 cm long. The two phenotypes intergrade quite a lot and are not always readily distinguishable, but var. acuminatum is the normal phase west of Lake Superior, becoming rather sporadic further east.

### Order 37. RHOEDALES

Floral parts in 2's, free (except the carpels) and more or less clearly opposite. However the leaves usually alternate. This is the general pattern for the next few orders. The Rhoe-  
dales have only 2 sepals.

a. Flowers regular ..... 67. Papaveraceae  
aa. Flowers zygomorphic or bilateral.....68. Fumariaceae p. 42

#### 67. PAPAVERACEAE

(POPPY FAMILY)

Flowers regular with the 2 sepals quickly caducous. Stamens numerous.

a. Leaf broadly reniform and palmately lobed ..... 2. Sanguinaria  
aa. Leaf serrate to ternately or pinnately divided.  
b. Receptacle expanded into a conspicuous collar at the base of the flower and fruit ..... 1. Eschscholzia

ASARUM

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- bb. Receptacle more run-of-the-mill and  
in no way expanded ..... 3. Papaver

1. ESCHSCHOLZIA Cham.

Sepals fused together into a peaked hood and falling off as a unit before the flower opens. Receptacle enlarged into an infundibuliform structure with a spreading flange. Petals 4.

1. E. CALIFORNICA Cham. -- California-Poppy, Cup-of-Flame (Globe du soleil) -- Pod grooved; with 10 dark green lines, much in the same manner as the striated stem. Glabrous and more or less glaucous. Leaves finely tripinnatifid, the segments about 1 mm wide. Flower large and showy, yellow to orange. First half of summer. Often seeded as an ornamental and casually reseeding itself on roadsides and waste places: Dauphin. -- PEI, Man, BC, US.

2. SANGUINARIA L.

BLOOD-ROOT

Petals numerous, at least 8.

1. S. canadensis L. var. canadensis -- Bloodroot (Sang-dragon, Sanguinaire) -- Exudes an abundant brilliant-red juice from the slightest wound. Very showy spring flower with a single large reniform leaf cradling a single white flower. Stemless. Very early spring. Deciduous and rocky woods. -- NS, NB-sMan, US.

Reported from 5 or 6 localities in southern Manitoba, but we have seen no other specimen than from Sprague (CAN).

3. PAPAYER L.

POPPY

Ovary topped by a stellate crown, with 4-20 rays. Fruit opening by pores just below the crown. Petals 4.

a. Annuals and the stem leafy.

b. Sepals and stem glabrous except near

the top ..... 1. P. somniferum

bb. Hirsute throughout ..... 2. P. Rhoeas

aa. Perennial and stemless ..... 3. P. nudicaule

1. P. SOMNIFERUM L. -- Poppy, Opium-Poppy (Pavot) -- Stiffly erect and somewhat glaucous annual with very large and very thin petals. Leaves more or less oblong, irregularly dentate, deeply cordate and amplexicaul. The long peduncle usually coarsely hirsute. Fruit large and nearly globular. All summer. Cultivated ornamental, casually reseeding itself in open ground: Sandy Lake, Westerham and Fort Vermilion. -- NF, NS, NB-O-(Man)-S-Alta-(BC, US), Eur.

2. P. RHOEAS L. -- Corn-Poppy (Coquelicot, Pavot) -- Much as the preceeding, but coarsely hirsute throughout. Leaves lobed, often deeply so, attenuate at base. Fruit smaller. First half of summer. Cultivated and rarely reseeding itself; not weedy with us. -- (Aka), NS, (NB)-Q-S, (BC), US, Eur, (Afr).

3. *P. NUDICAULE* L. -- Arctic Poppy (Pavot safrané) -- Perennial, the leaves all basal. Hirsute, especially on the scape. Leaves long-petioled, pinnatifid, 5-15 cm long including the petiole. Scape 2-4 dm high. Flower large, variable in colour, most commonly salmon. Summer. Casual garden escape. --Y-Aka, Man, Alta, Eur-- Var. coloradense Fedde (*P. pygmaeum* Rydb.) Leaves 1-5 cm long including the petiole. Petals 5-15 mm long, yellow to salmon. First half of summer. Talus slopes above timberline. -- Alta-BC, (US).

The only Canadian reports of *Argemone intermedia* Sweet are by Russell 1954 and (doubtfully) by Breitung 1957, on the basis of a collection from Prince, Sask., supposedly preserved at SASK. The only collection we have located in any Saskatchewan herbarium came from Nebraska and the Canadian report remains both unsubstantiated and questionable as being possibly based on cultivated material. Recently this species was alternately called *A. polyanthemos* (Fedde) G.B. Ownbey. See Mem. Torr. Bot. Club 21: 131. 1958. The argument for the change runs as follows: *A. intermedia* was described in 1828 on cultivated plants from seeds originating in Mexico; but *A. intermedia* is not known to occur to-day in Mexico, hence the current interpretation of this name must be mistaken. This argument overlooks that much of the U.S.A. of to-day were formerly part of Mexico. Texas, where *A. intermedia* is largely distributed, was a Mexican state in 1828 and did not become part of the U.S.A. until 1845, hence the seeds of *A. intermedia* could very well have originated in Mexico. Even if a type of *A. intermedia* has yet to be located, we see no obvious reason to drop this name in favour of the more recent *A. polyanthemos*.

#### 68. FUMARIACEAE (FUMITORY FAMILY)

Flowers bilateral or zygomorphic. Sepals only 2 as in the Papaveraceae, stamens 6 as in the Cruciferae and the flower with 1 or 2 spurs, these sometimes weakly developed.

a. Corolla bilateral; plant climbing ..... 1. *Adlumia*  
aa. Corolla zygomorphic, with only 1 spur.

b. Flower more than 1 cm long; fruit an

elongated pod ..... 2. *Corydalis*

bb. Flower smaller; fruit subglobose ..... 3. *Fumaria*

#### 1. ADLUMIA Raf.

#### CLIMBING FUMITORY

Flower almost unique in our flora in its bilateral symmetry.

1. *A. fungosa* (Aiton) Greene -- Canary-Vine, Fairy Creeper -- A climber by twining and entangling. Leaves 2-4 times ternately or somewhat pinnately compound. Upper part of the stem leafless, all the leaves being borne on the branches. Inflorescences extra-axillary. Flowers pearly-pink. Summer and fall. Rocky deciduous woods. -- (NS), Q-Man, BC, US.

We have seen specimens from Winnipeg and West Hawk Lake.

It has also been reported from Victoria Beach.

## 2. CORYDALIS Med.

Fruit an elongated pod similar to those of the Cruciferae, but without a central partition, or seemingly with a partition reduced to its marginal nerve. Flower zygomorphic, spurred on the upper side.

- a. Flowers pink and yellow, in a short few-flowered raceme .....1. C. sempervirens
- aa. Flowers pale yellow, in an elongate raceme ..... 2. C. aurea

1. C. sempervirens (L.) Pers. -- Rock-Harlequin -- A delicate and glaucous herb with spurred, pink and yellow flowers. Stem leaves mostly with 3-5 leaflets, the latter ternatipartite to palmatifid. Basal leaves more divided. Pod slightly torulose. Late spring to mid summer. Usually on granitic outcrops. -- K-Aka, L-NF, NS-BC, US -- F. candida Lakela -- Flowers white. Local. -- nS, US.

2. C. aurea W. var. aurea -- Similar, but the flowers yellow and in distinct terminal racemes. Leaves bipinnate, the leaflets smaller with much narrower lobes. Pod falcate and strongly torulose. Mid spring to early summer. Loose sandy soils. -- Mack-Aka, Q-BC, US.

In our plant the pods are ± descending and the inflorescences are ± immersed in the foliage. The more southern var. occidentalis Eng. has more elongate inflorescences decidedly overtopping the foliage and the pods are ascending to erect.

## 3. FUMARIA L.

FUMITORY

Like Corydalis, but its subglobose fruit indehiscent.

1. F. OFFICINALIS L. -- Earth-Smoke, Fumitory (Fumeterre, Bec d'alouette) -- A delicate annual weed with flowers like those of Corydalis sempervirens, but purplish and darker at tip. Leaves ternately dissected into numerous narrow segments. Flowers 8 mm long, in terminal racemes. Pod 2 mm long. First half of summer. Infrequent weed of cultivated land. -- NF-SPM, NS-Alta-(BC), US, SA, Eur.

Known from a number of localities in Manitoba and also further west at Lewvan, Gravelbourg and Beaverlodge. The Gravelbourg collection was made in the summer of 1964 and by the time it reached us by ordinary mail it was not fit for herbarium preservation.

## Order 38. LOASALES

Possibly not very closely related to the neighbouring orders. Flower 5-merous. Petals free. Stamens numerous.

## 69. LOASACEAE

(LOASA FAMILY)

Ovary inferior.